A Level

Economics Paper-3

Topical Solved MCQ's

(1980 - 2019)

Features:

- All variants
- 1274 MCQs Classified in 20 chapter and 84 subtopics
- References of repeated questions added
- Solved with explanation of all choices A,B,C & D
- Questions order from new to old & easy to difficult
- MCQ's grouped in (Descriptive)(Graphical) (Numerical) questions

Author:

Imran Latif

Beaconhouse Defense Campus Lahore

Beaconhouse College Campus Gulberg, Lahore

Beaconhouse ALJT, Lahore

Lahore College of Arts & Sciences (LACAS) Johar Town Campus

Keynesian Institute of Management Sciences (KIMS)

Green Hall Academy

Editor:

Raza Haider

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+92-42-35714038 +92-336-5314141 www.readnwrite.org readandwritepublications/Shop

Head Office: 3-C, Zahoor Elahi Road, Gulberg II, Lahore. readandwrite.publications@gmail.com

Sale Point: Shop No. 25-28 Lower Ground Floor, Haadia Haleema Centre, Ghazni Street, Urdu Bazar, Lahore

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Preface

This book provides a thorough exercise of paper 3 for students taking Cambridge International Examinations A-Level Economics. Multiple Choice Questions from past examinations are sorted into relevant chapters and topics which will enable students to practice their understanding systematically.

We appreciate our students and fellow teachers who helped us to improve this book. Your suggestions and comments will be highly appreciated.

Imran Latif
M.A. Economics
M.A. Mass Communication
Cell: +92 300 4410900
Email: imranlatifmalik@gmail.com

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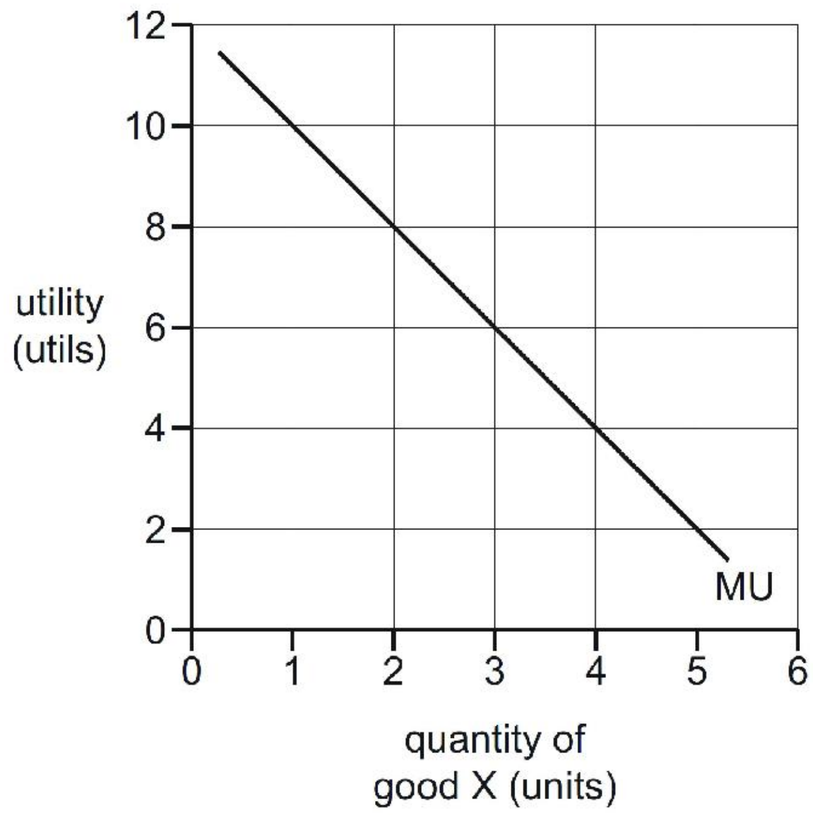
Unit -1 Theory of consumer behaviour

1.1 Law of diminishing marginal utility

1. M/J 15/P33/Q2

The diagram shows the marginal utility (MU) an individual derives from consuming different quantities of good X.



At the margin, the individual derives two units of utility from every $1 that he spends.
Which quantity of good X will he purchase if the price of X is $2?

A 1 **B** 2 **C** 4 **D** 5

2. O/N 14/P14/Q2

The schedule shows the total utility derived by a consumer of a good X at different levels of consumption.

quantity of X consumed	1	2	3	4	5	6	7
total utility (units)	30	50	65	75	80	83	84

The consumer obtains two units of utility from the last $ she spends on each good that she purchases.
What is the maximum number of units of X that she will consume if the price of X is $5?

A 3 **B** 4 **C** 5 **D** 6

3. M/J 08/P3/Q2, O/N 13/P3/Q2

The table shows the total utility that an individual derives from consuming different quantities of a good.

quantity of good (units)	total utility (units)
1	24
2	45
3	63
4	78
5	90
6	99

The individual's marginal utility of money is $1 = 2 units of utility.
What is the maximum quantity of the good that the individual will buy when its price is $6?

A 2 units **B** 3 units **C** 4 units **D** 5 units

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4. M/J 13/P32/Q2, O/N 05/P3/Q2

The table shows the total utility that an individual derives from consuming different quantities of a good.

quantity of good (units)	total utility (units)
1	20
2	36
3	50
4	62
5	72
6	80

The individual's marginal utility of money is $1 = 2 units of utility.
What is the maximum quantity of the good that the individual will buy when its price is $6?

A 2 units **B** 3 units **C** 4 units **D** 5 units

5. M/J 12/P32/Q2, O/N 15/P31/Q2

The table shows the total utility that an individual obtains from consuming different quantities of a good.

Quantity of good (units)	**total utility (units)**
1	20
2	36
3	50
4	62
5	72
6	80

The individual's marginal utility of money is $1 = 3 units of utility.
What is the maximum quantity of the good that the individual will buy when its price is $4?

A 2 units **B** 3 units **C** 4 units **D** 5 units

6. O/N 11/P32/Q1, M/J 16/P31/Q4

Why does a normal demand curve for a product slope downwards from left to right?

A Buyers' additional satisfaction declines as consumption rises.

B Consumers are faced with choices between competing products.

C Sellers are willing to accept lower prices on larger orders.

D The average cost of production falls as the scale of production increases.

7. O/N 10/P32/Q2

The schedule shows the total utility derived by a consumer of a good X at different levels of consumption.

Quantity of X consumed	1	2	3	4	5	6	7
Total utility (units)	30	50	65	75	80	83	84

The consumer obtains three units of utility from the last $ she spends on each good that she purchases.
What is the maximum number of units of X that she will consume if the price of X is $5?

A 3 **B** 4 **C** 5 **D** 6

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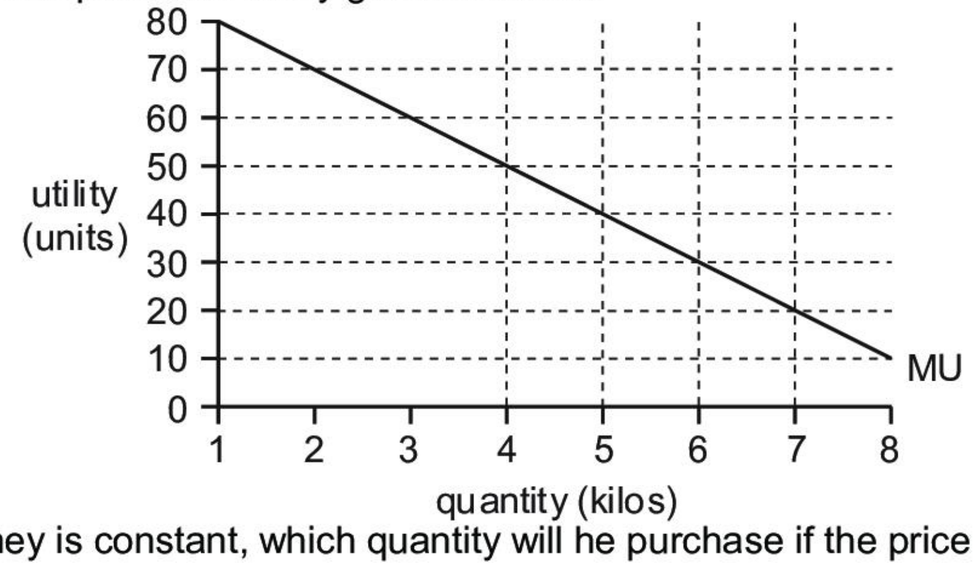
8. M/J 17/P31/Q5, M/J 10/P32/Q1

The diagram shows the marginal utility (MU) that an individual derives from a good at different levels of consumption.
The utility he derives from the last $ he spends on every good is 3 units.



Assuming the marginal utility of money is constant, which quantity will he purchase if the price of the good is $10?

A 4 kilos **B** 5 kilos **C** 6 kilos **D** 7 kilos

9. O/N 09/P32/Q1

The schedule shows the total utility derived by a consumer of a good X at different levels of consumption.

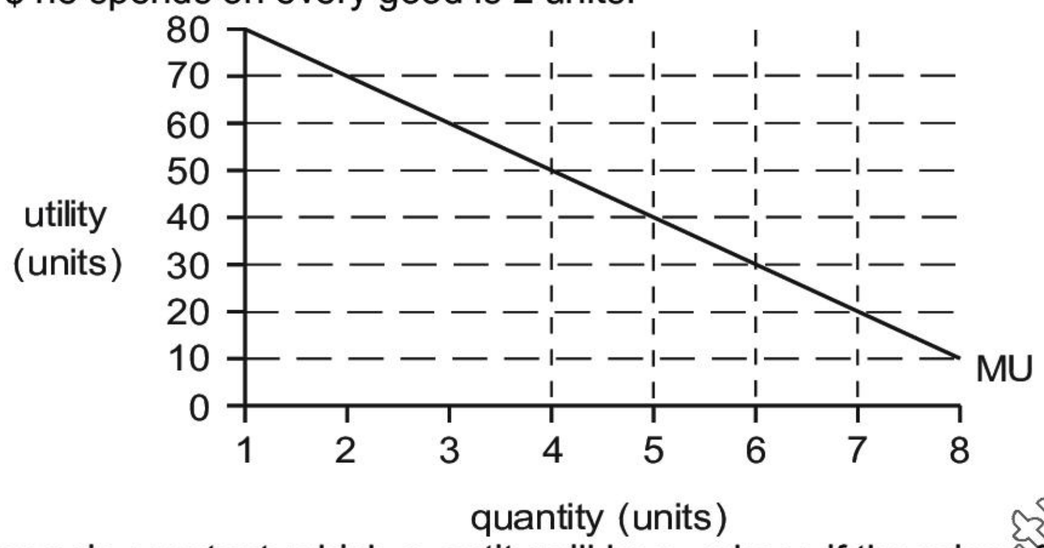
quantity of x consumed	1	2	3	4	5	6	7	8
total utility (units)	28	40	50	58	64	68	71	73

The consumer obtains two units of satisfaction from the last cent she spends on each good that she purchases.
What is the maximum number of units of X that she will consume if the price of X is 6 cents?

A 2 **B** 5 **C** 7 **D** 8

10. O/N 06/P3/Q2

The diagram shows the marginal utility that an individual derives from a good at different levels of consumption.
The utility he derives from the last $ he spends on every good is 2 units.



Assuming the marginal utility of money is constant, which quantity will he purchase if the price of the good is $20?

A 4 units **B** 5 units **C** 6 units **D** 7 units

11. O/N 04/P3/Q3

What explains the slope of an individual's demand curve for a normal good?

A market imperfections
B the law of variable proportions
C diminishing returns
D diminishing marginal utility

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12. O/N 02/P3/Q2

The table shows the marginal utility that a consumer obtains from consuming successive units of good X.

quantity (units)	mu (units of utility)
1	10
2	18
3	24
4	28
5	30
6	31

The price of good X is $4.
What additional information is needed to determine the quantity of X that the consumer will purchase?

A the consumer's income elasticity of demand for good X

B the consumer's price elasticity of demand for good X

C the marginal utility of money to the consumer

D the marginal utility that the consumer obtains from substitute goods

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Answers Section

1. C

According to question, the marginal utility of money is $1 = 2 utils. At price of $2 the marginal utility = 2×2 = 4 utils. From the diagram, taking 4 utils at vertical axis and using MU curve, the corresponding quantity is 4 units.

2. B

According to question, the marginal utility of money is 1 dollar to 2 utils. At price of 5 dollars the marginal utility = 5x2 = 10 utils. From the table, according to Law of diminishing marginal utility the consumer equilibrium is established where MU=P. The Marginal Utilities are calculated as below.

quantity of X consumed	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Total Utility (Utils)	30	50	65	75	80	83	84
Marginal Utility	30	20	15	10	5	2	1
Price (utils)	10	10	10	10	10	10	10

At quantity= 4 MU is 10 therefore according to Law of diminishing marginal utility consumer will buy a maximum 4 units.

3. D

According to question, the marginal utility of money is $1 = 2 utils. At price of $6 the marginal utility = 6x2 = 12 utils. From the table, according to Law of diminishing marginal utility the consumer equilibrium is established where MU=P. The marginal utilities are calculated as below

Quantity of good (units)	Total Utilities	Marginal Utilities	Price (utils)
1	24	24	12
2	45	21	12
3	63	18	12
4	78	15	12
5	90	12	12
6	99	9	12

At quantity 5, MU is 12 and therefore according to Law of diminishing marginal utility consumer will buy a maximum 5 units.

4. C

According to question, the marginal utility of (Law of diminishing marginal utility) money is $1 to 2 utils. At price of $6 the marginal utility = 6×2 = 12 utils. From the table, according to Law of diminishing marginal utility the consumer equilibrium is established where MU=P. The marginal utilities are calculated as below

Quantity of good (units)	Total Utilities	Marginal Utilities	Price (utils)
1	20	20	12
2	36	16	12
3	50	14	12
4	62	12	12
5	72	10	12
6	80	8	12

At 4 units of quantity, MU is 12 therefore according to Law of diminishing marginal utility consumer will buy a maximum 4 units.

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5. C

According to question, the marginal utility of (Law of diminishing marginal utility) money is $1 to 3 utils. At price of $4 the marginal utility = 4×3 = 12 utils. From the table, according to Law of diminishing marginal utility the consumer equilibrium is established where MU=P. The marginal utilities are calculated as below

Quantity of good (units)	Total Utilities	Marginal Utilities	Price (utils)
1	20	20	12
2	36	16	12
3	50	14	12
4	62	12	12
5	72	10	12
6	80	8	12

At 4 units of quantity, MU is 12 therefore according to Law of diminishing marginal utility consumer will buy a maximum 4 units.

6. A

The demand curve can be linked to marginal utility theory. As a consumer consumes more a product its marginal utility (utility from an additional unit) falls so a consumer is willing to pay a lower price for the product. Lower the marginal utility obtained from a good, the lower the price a consumer will be willing to pay for a product. Although the statement in option B is correct, in the sense that consumers are faced with choices between competing goods, it does not explicitly state why this leads to a downward sloping demand curve. Option C and D refer to the supply curve.

7. A

As MU of money is $1=3 utils, the marginal utility table is as follows.

quantity of X consumed	1	2	3	4	5	6	7
Total Utility (utils)	30	50	65	75	80	83	84
Marginal Utility (MU)	30	20	15	10	5	2	1
Price (utils)	15	15	15	15	15	15	15

At price = $5, Converting $ to utils, Price = 5×3 = 15 utils. According to Law of diminishing marginal utility consumer equilibrium is established where MU = P.
Therefore maximum quantity is 3.

8. C

According to question, the marginal utility of money is $1 = 3 utils. For consumer equilibrium MU=P. At price of $10 the marginal utility should be = 10×3 = 30 utils. From the diagram, taking 30 utils at vertical axis and using MU curve, the corresponding quantity is 6 units.

9. A

According to question, the marginal utility of money is 1 cent to 2 utils. At price of 6 cents the marginal utility = 6x2 = 12 utils. From the table, according to Law of diminishing marginal utility the consumer equilibrium is established where MU=P. The Marginal Utilities are calculated as below

Quantity of good (units)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Total Utilities	28	40	50	58	64	68	71	73
Marginal Utilities	28	12	10	8	6	4	3	2
Price (utils)	12	12	12	12	12	12	12	12

At quantity= 2 MU is 12 therefore according to Law of diminishing marginal utility consumer will buy a maximum 2 units.

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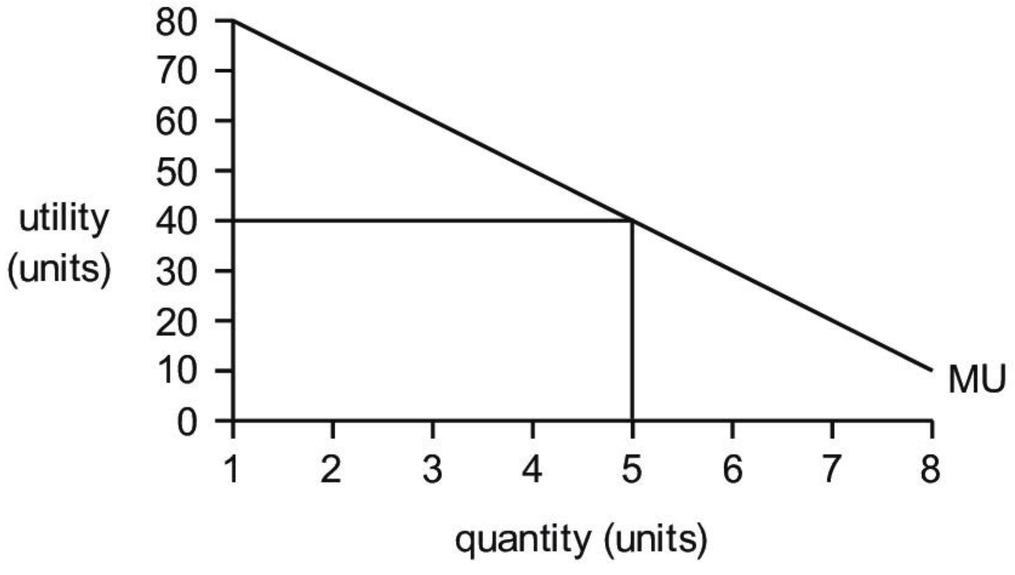
10. B

According to question, the marginal utility of money is \$1 = 2 utils. At price of \$20 the marginal utility = 20×2 = 40 utils. From the diagram, taking 40 utils at vertical axis and using MU curve, the corresponding quantity is 5 units.



11. D

Demand curve shows negative relationship between price and quantity demanded. According to LDMU (Law of diminishing marginal utility), consumer equilibrium is at MU=P. With the established consumer equilibrium at every quantity MU=P, the marginal utility becomes a demand curve. The marginal utility curve helps to explain the negative relationship that with the increase in consumption of product MU declines and so does the price that consumers are ready to pay.

12. C

According to Law of Diminishing Marginal Utility, consumer equilibrium is established where MU= P. In order to equate the marginal utility and price and find the quantity where consumer equilibrium will be established, marginal utility of money is needed, i.e., utils per \$ spent. MU is measured in utils and price is measured in currency, therefore they can't be equated without a given MU of money.

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1.2 Law of equi-marginal utility

1. M/J 16/P32/Q5, O/N 11/P31/Q3
To maximise the satisfaction he derives from a given level of expenditure on two goods, X and Y, a consumer should allocate his expenditure between the two goods so that

A marginal utility of X = price of X and marginal utility of Y = price of Y.
B marginal utility of X plus marginal utility of Y is maximised.
C marginal utility of X = marginal utility of Y.
D $\frac{\text{marginal utility of X}}{\text{marginal utilty of Y}} = \frac{\text{price of X}}{\text{price of Y}}$.

2. O/N 15/P33/Q2

To maximise the satisfaction she derives from a given level of expenditure on two goods, X and Y, how should a consumer allocate her expenditure between the two goods?

A $\text{Marginal utility X} = \text{Marginal utility Y}$
B $\text{Marginal utility X} \times \text{price of X} = \text{Marginal utility Y}$
C $\frac{\text{Marginal utility X}}{\text{price of Y}} = \frac{\text{Marginal utility Y}}{\text{price of X}}$
D $\frac{\text{Marginal utility X}}{\text{Marginal utility Y}} = \frac{\text{price of X}}{\text{price of Y}}$

3. M/J 15/P31/Q2, O/N 12/P33/Q2
A household which spends all of its income on bananas and apples makes the following purchases.

fruit	price per unit ($)
bananas	2.50
apples	1.00

The household derives twice as much utility from the last unit of bananas consumed as from the last unit of apples consumed.
What should the household do to maximise utility from the consumption of these fruits?

	consumption of bananas	consumption of apples
A	decrease	increase
B	increase	decrease
C	no change	decrease
D	no change	increase

4. O/N 14/P32/Q2
A household makes the following purchases of fruit.

fruit	quantity purchased (kg)	price per kg ($)
bananas	5	1.00
apples	10	0.50

The household derives twice as much utility from the tenth kg of apples as from the fifth kg of bananas.
What should the household do to maximise utility from the purchase of these fruits?

	purchase of bananas	purchase of apples
A	decrease	increase
B	increase	decrease
C	increase	increase
D	no change	no change

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5. M/J 03/P3/Q2

A household makes the following purchases of fruit.

fruit	quantity purchased (kg)	price per kg ($)
bananas	5	1.00
apples	10	0.50

The household derives twice as much utility from the fifth kg of bananas as from the tenth kg of apples.
What should the household do to maximise utility from the purchase of these fruits?

	purchase of bananas	purchase of apples
A	increase	decrease
B	decrease	increase
C	increase	increase
D	no change	no change

6. M/J 15/P32/Q2, M/J 12/P33/Q2

A utility maximising consumer spends the whole of his disposable income of $40 on food and clothing.
The table shows the price of food, the quantity purchased by the consumer, and the marginal utility he derives from food consumption.

food	
price per unit	$5
quantity demanded	5
marginal utility (units) 10	10

His marginal utility from clothing is 2 units.
What is the price of clothing per unit and the quantity purchased by the consumer?

	Clothing	
	Price ($)	**Quantity (units)**
A	0.5	30
B	1.0	15
C	3.0	5
D	5.0	3

7. O/N 14/P33/Q2

A consumer allocates his expenditure between three goods, X, Y and Z.
The table shows the consumer's marginal utilities for these goods and their prices.

good	X	Y	Z
marginal utility (units)	3	5	10
price ($)	10	15	30

How should the consumer's expenditure be reallocated in order to maximise his utility?

	X	Y	Z
A	less	less	more
B	less	more	more
C	more	less	less
D	more	more	less

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8. O/N 04/P3/Q2

A consumer allocates his expenditure between three goods, X, Y and Z.
The table shows the prices of goods and the consumer's marginal utilities.

good	X	Y	Z
price ($)	20	15	10
marginal utility (units)	50	30	15

How should the consumer's expenditure be reallocated in order to maximise his utility?

	X	Y	Z
A	more	more	less
B	more	less	more
C	less	more	less
D	less	less	more

9. O/N 07/P3/Q2

A consumer allocates his expenditure between three goods, X, Y and Z.
The table shows the consumer's marginal utilities for these goods and their prices.

good	X	Y	Z
marginal utility (units)	50	30	25
price ($)	20	15	10

How should the consumer's expenditure be reallocated in order to maximise his utility?

good	X	Y	Z
A	more	more	less
B	more	less	more
C	less	more	less
D	less	less	more

10. M/J 14/P31/Q2, M/J 14/P33/Q2, O/N 12/P32/Q2, M/J 07,M/J 11/P32/Q2

A consumer seeks to maximise his utility.
Up to what point should he continue to consume each good?

A until the marginal utility per dollar from each good is the same

B until the marginal utility from each good is the same

C until the marginal utility from each good reaches a maximum

D until the marginal utility from each good is zero

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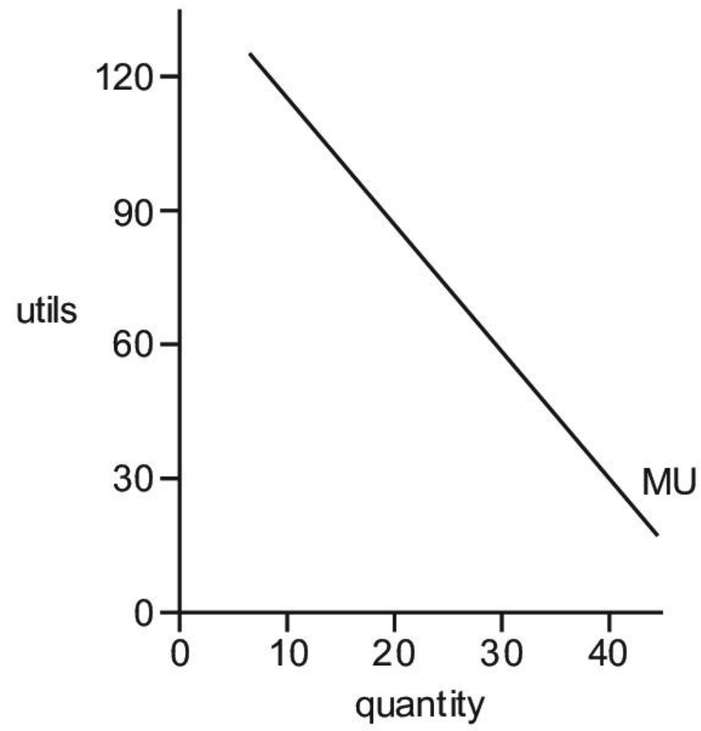
11. O/N 12/P31/Q2

The table gives information about an individual's consumption of good X.

price of good X	$10
quantity demanded (units)	25
marginal utility (utils)	30

The diagram shows the marginal utility a consumer derives from the consumption of good Y.



Assuming no change in the price of good X, by how much will the individual's consumption of good Y increase if the price falls from $30 to $20?

A 5 units **B** 10 units **C** 20 units **D** 30 units

12. O/N 13/P31/Q2, M/J 09/P32/Q2

The table shows the marginal utility derived by a consumer who devotes the whole of his weekly income of $42 to two goods X and Y. Good X costs $3 per unit and Good Y $6 per unit.

Unit	marginal utility of X (units)	marginal utility of Y (units)
1	12	34
2	11	30
3	10	26
4	9	22
5	8	18
6	7	14
7	6	10
8	5	6

In order to maximise his utility, which quantities of X and Y should the consumer purchase?

	X	Y
A	4	6
B	4	5
C	6	4
D	8	3

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13. O/N 03/P3/Q2

A utility-maximising consumer spends his disposable income on food and clothing. When his weekly income is $40 he buys 5 units of food at a unit price of $5. His marginal utility from food consumption is 10 utility units.
If the price of a clothing unit is $0.50, the consumer's marginal utility from clothing is

A equal to that derived from food

B $\frac{1}{10}$ utility unit

C 1 utility unit

D 10 utility units

14. M/J 02/P3/Q3

The table shows the marginal utility derived by a consumer who devotes the whole of his weekly income of $32 to two goods X and Y, whose unit prices are $2 and $4 respectively.

unit	marginal utility of X (units)	marginal utility of Y (units)
1	9	28
2	8	26
3	7	24
4	6	22
5	5	20
6	4	18
7	3	16
8	2	14

In order to maximise his utility, which quantities of X and Y should the consumer purchase?

	X	Y
A	2	7
B	4	6
C	6	4
D	8	3

15. M/J 05/P3/Q2

The relative prices of goods reflect their marginal utilities rather than their total utilities.

What is explained by this statement?

A the law of diminishing returns

B the limitations of marginal utility theory

C the paradox of value

D the role of prices as a rationing mechanism

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Answers Section

1. D

2. D

3. A

For multiple goods & services, the utility maximization rule is that the last dollar spent on each good or service yields the same amount of utility. In mathematical terms, the equation is:

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

So, only if the above equation, will the consumer be in equilibrium. The statement says the last unit of bananas derives twice as much utility as apples do.

So if $MU_{apples} = x$ then $MU_{bananas} = 2x$.

So substituting the numbers in the equation we get:

$$\frac{MU_{apple}}{P_{apple}} = \frac{x}{1} = 1x \qquad \frac{MU_{banana}}{P_{banana}} = \frac{2x}{2.5} = 0.8x$$

$$\frac{MU_{apple}}{P_{apple}} > \frac{MU_{banana}}{P_{banana}}$$

Since the marginal utility per dollar obtained from apples is greater, we increase consumption of apples and reduce consumption of bananas.

4. A

For multiple goods & services, the utility maximization rule is that the last dollar spent on each good or service yields the same amount of utility. In mathematical terms, the equation is:

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

So, only if the above equation, will the consumer be in equilibrium. The statement says the last kg of apple derives twice as much utility as bananas do.

So if $MU_{banana} = x$ then $MU_{apple} = 2x$.

So substituting the numbers in the equation we get:

$$\frac{MU_{banana}}{P_{banana}} = \frac{x}{1} = x \qquad \frac{MU_{apple}}{P_{apple}} = \frac{2x}{0.5} = 4x$$

$$\frac{MU_{banana}}{P_{banana}} < \frac{MU_{apple}}{P_{apple}}$$

Since the marginal utility per dollar obtained from apples is greater, we increase consumption of apples and reduce consumption of bananas. So option A is the correct combination.

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5. D

According to statement the household derives twice as much utility from the 5th kg of bananas as from the 10th kg of apples. Therefore:
Let the Marginal Utility of apples from 10th kg be X.
Marginal Utility of bananas from 5th kg will be 2X.
Using Law of equi-marginal utility:

$$\frac{MU_{apples}}{P_{apples}} = \frac{MU_{bananas}}{P_{bananas}} \Rightarrow \frac{x}{0.5} = \frac{2x}{1} = 2x$$

As $\frac{MU_{apples}}{P_{apples}} = \frac{MU_{bananas}}{P_{bananas}}$ therefore, there is consumer equilibrium and the utility is already maximized. The household does not need to change anything.

6. B

Using Law of equi-marginal utility, consumer equilibrium will be established where

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

In this case, $MU_{food} = 10$ and $P_{food} = 5$, therefore $\frac{MU_{food}}{P_{food}} = \frac{10}{5} = 2$

On the other hand, marginal utility of clothing ($MU_{clothing}$) is 2. We can find $P_{clothing}$ using law of equimarginal utility.

$$\frac{MU_{food}}{P_{food}} = \frac{MU_{clothing}}{P_{clothing}} = \frac{10}{5} = \frac{2}{P_y} \Rightarrow P_y = \frac{10}{5 \times 2} = 1$$

Hence, the price of clothing will be $1 and consumer will consume corresponding quantity 15 units.

7. B

The MU/P for X,Y and Z is shown below.

Good	X	Y	Z
Marginal Utility	3	5	10
Price $	10	15	30
Marginal Utility/Price	0.30	0.33	0.33

As MU_y per dollar and MU_z per dollar is greater than MU_x per dollar, there is consumer disequilibrium. Therefore the rational consumer will consume less of X and more of Y and Z in accordance with the law of equi marginal utility.

8. A

The MU/P for X,Y and Z is shown below.

Good	X	Y	Z
Price ($)	20	15	10
MU	50	30	15
MU/P	2.5	2	1.5

As MU_x per dollar and MU_y per dollar is greater than MU_z per dollar , there is consumer disequilibrium. Therefore the rational consumer will consume more of X and Y and consume Z lesser in accordance with the Law of equi marginal utility

9. B

The MU/P for X,Y and Z is shown below.

Good	X	Y	Z
Marginal Utility	20	15	10
Price $	50	30	25
Marginal Utility/Price	2	2	2.5

As MU_x per dollar and MU_z per dollar is greater than MU_y per dollar, there is consumer disequilibrium. Therefore the rational consumer will consume more of X and Z and will consume Y lesser in accordance with the Law of Equi Marginal Utility

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10. A

For multiple goods & services, the utility maximization rule is that the last dollar spent on each good or service yields the same amount of utility. In mathematical terms, the equation is:

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

So, only if the marginal utility per dollar from each good is the same, will the consumer be in equilibrium.

11. B

Using Law of equi-marginal utility, consumer equilibrium will be established where

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

In this case, $MU_x = 30$ and $P_x = 10$, therefore $\frac{MU_x}{P_x} = \frac{30}{10} = 3$

On the other hand, initial price of y is \$30. We can find MU_y using law of equi-marginal utility.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \frac{30}{10} = \frac{MU_y}{30} \Rightarrow MU_y = \frac{30 \times 30}{10} = 90$$

At $MU_y = 90$, according to the diagram, consumer will consume 20 units of the good Y.

If price of good Y falls to \$20, new MU_y can be calculated again with law of equimarginal utility formula, provided that there is no change in price of good X,

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \frac{30}{10} = \frac{MU_y}{20} \Rightarrow MU_y = \frac{30 \times 20}{10} = 60$$

At $MU_y = 60$, according to the diagram, consumer will consume 30 units of the good Y. Hence there will be an increase of 10 units of Y by the consumer.

12. B

Using Law of equi-marginal utility

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

In this case, P_x = \$3 and P_x =\$6, dividing marginal utilities with respective prices of goo X and Y:

Unit	MU_x	MU_y	MU_x/P_x	MU_y/P_y
1	12	34	4	5.67
2	11	30	3.67	5
3	10	26	3.33	4.33
4	9	22	3	3.67
5	8	18	2.67	3
6	7	14	2.33	2.33
7	6	10	2	1.67
8	5	6	1.67	1

Among the four options $MU_x/P_x = MU_y/P_y$ in option B only, i.e.,

$$\frac{9}{3} = \frac{18}{3} = 3$$

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13. C

As per statement

$MU_{food} = 10$ $P_{food} = 5$ $P_{clothing} = 0.5$ Let $MU_{clothing} = x$

Using Law of equi-marginal utility:

$$\frac{x}{0.5} = \frac{10}{5} \Rightarrow x = \frac{10 \times 0.5}{5} = 1$$

Therefore x= $MU_{clothing}$ = 1 util

14. A

Using Law of equi-marginal utility

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

This can shown by a table below where $P_x = 2$ and $P_y = 4$

Unit	MU_x	MU_y	MU_x/P_x	MU_y/P_y
1	9	28	4.5	7
2	8	26	4	6.5
3	7	24	3.5	6
4	6	22	3	5.5
5	5	20	2.5	5
6	4	18	2	4.5
7	3	16	1.5	4
8	2	14	1	3.5

In option A:

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \frac{8}{2} = \frac{16}{4} = 4$$

15. C

Paradox of value refers to illusion when apparent observation is different from reality. For example, diamonds seem to be more valuable than water as indicated by their prices. Relatively, diamond is more precious than water and therefore has a higher marginal utility. In reality water is more valuable because without it one can't live. Its total utility is higher than diamond's. Instead of using marginal utilities, total utilities should be considered to resolve the paradox of value.

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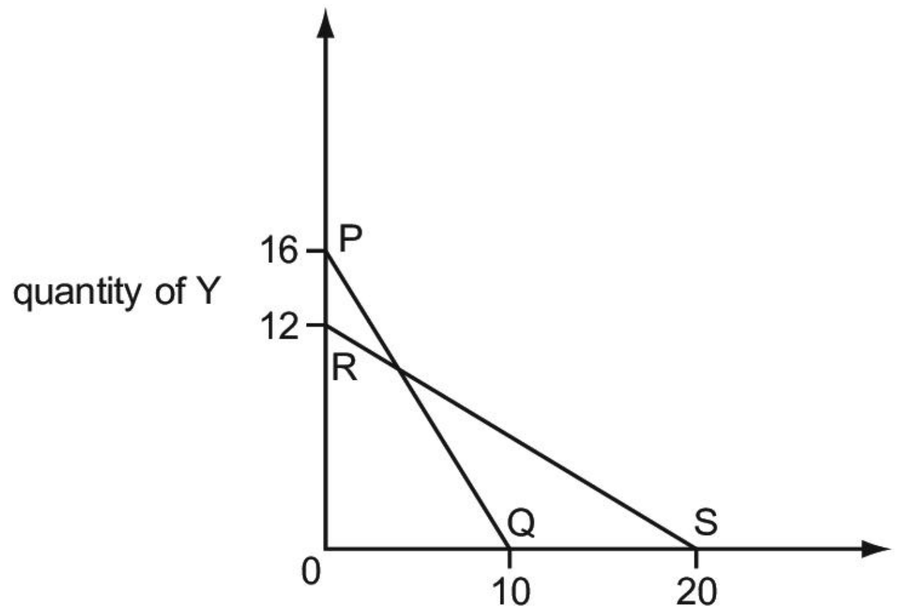
1.3 Budget line

1. O/N 11/P31/Q4, O/N 11/P33/Q3
In the diagram PQ is a consumer's original budget line.



The consumer's income increases from $80 to $120 and, at the same time, the prices of X and Y change.
If the consumer's budget line is now RS, what are the new prices of X and Y?

	price of X ($)	price of Y ($)
A	4	12
B	6	10
C	10	8
D	12	6

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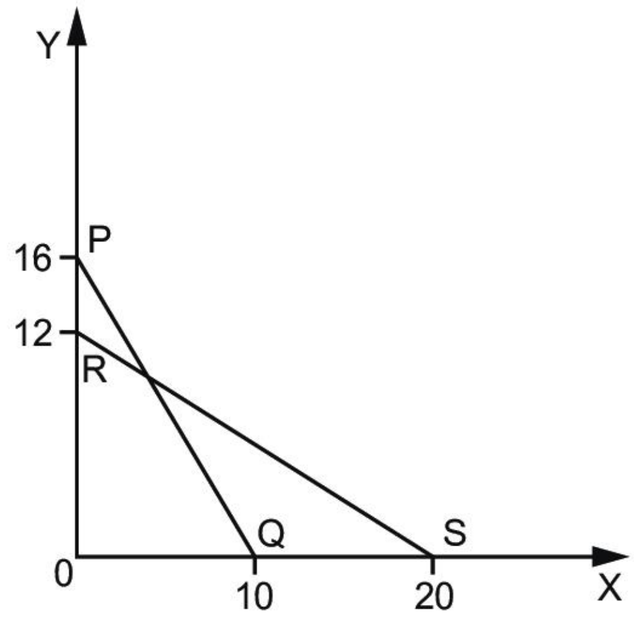
2. M/J 02/P3/Q4

The diagram shows a consumer's budget line PQ when the consumer's income was $20 per day and the prices of X and Y were $2 and $1.25 respectively.

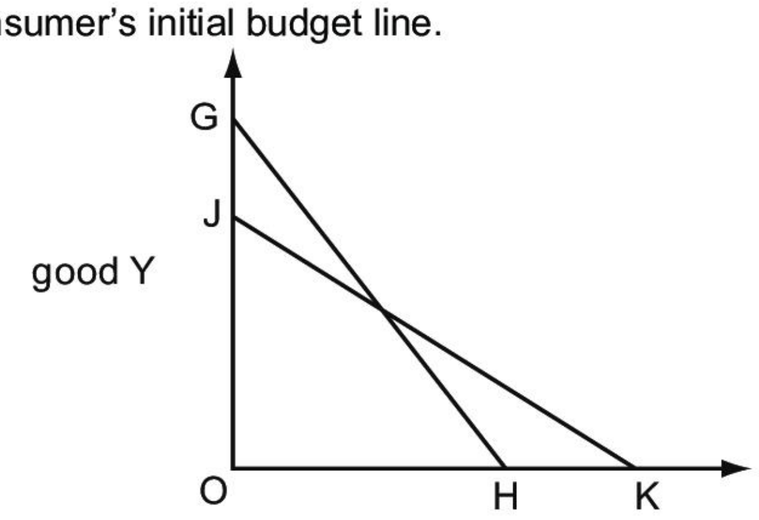


The consumer's income increases to $30 and, at the same time, the prices of X and Y change.
If the consumer's budget line is now RS, what are the new prices of X and Y?

	X	Y
A	$1.50	$2.50
B	$1.80	$1.00
C	$2.50	$1.50
D	$3.00	$2.50

3. M/J 12/P32/Q3, M/J 08/P3/Q3

The curve GH in the diagram is a consumer's initial budget line.



Which combination could cause the budget line to shift to JK?

	Price of good x	consumers' money income
A	decrease	decrease
B	decrease	Increase
C	increase	decrease
D	increase	increase

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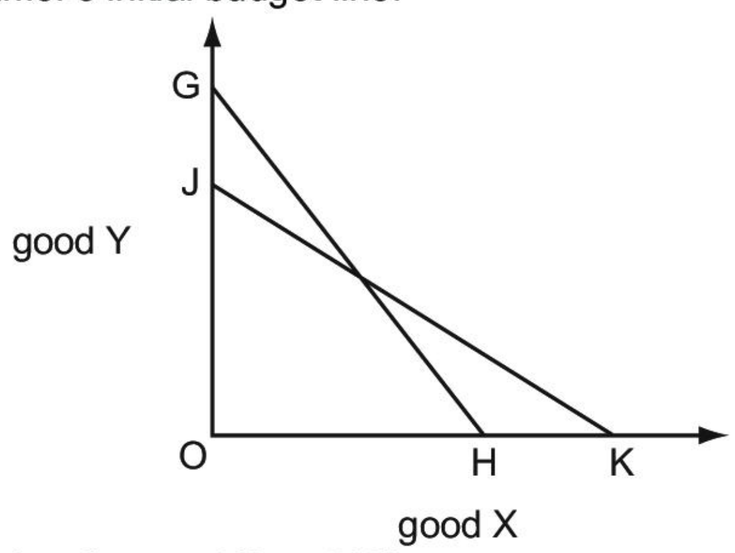
4. M/J 12/P33/Q3, M/J 14/P32/Q2

The curve JK in the diagram is a consumer's initial budget line.

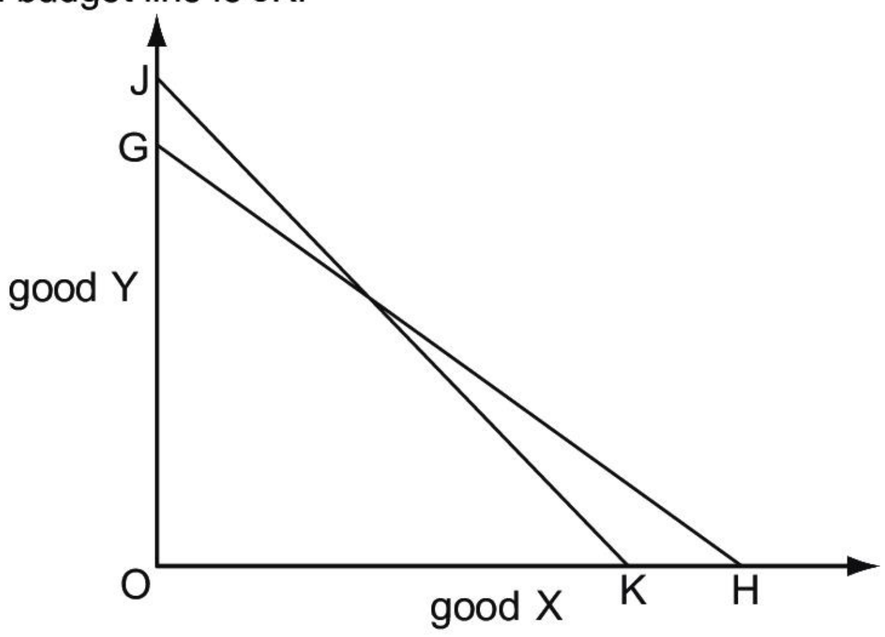


Which combination could cause the budget line to shift to GH?

	consumer's money income	price of good Y
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

5. M/J 11/P32/Q2, M/J 14/P31/Q3, M/J 14/P33/Q3

In the diagram a consumer's initial budget line is JK.



Assuming no change in the price of X, what could explain a shift in the consumer's budget line to GH?

	price of good Y	consumer's money income
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

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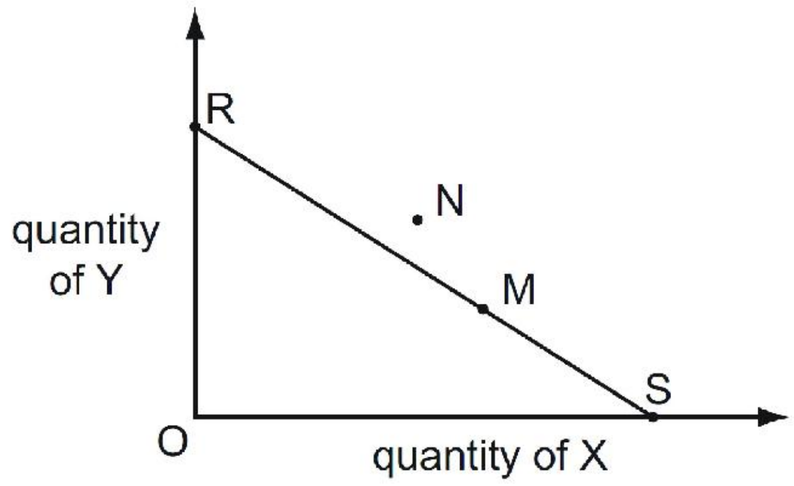
6. O/N 15/P33/Q3, O/N 13/P32/Q3

The line RS in the diagram is a consumer's budget line.

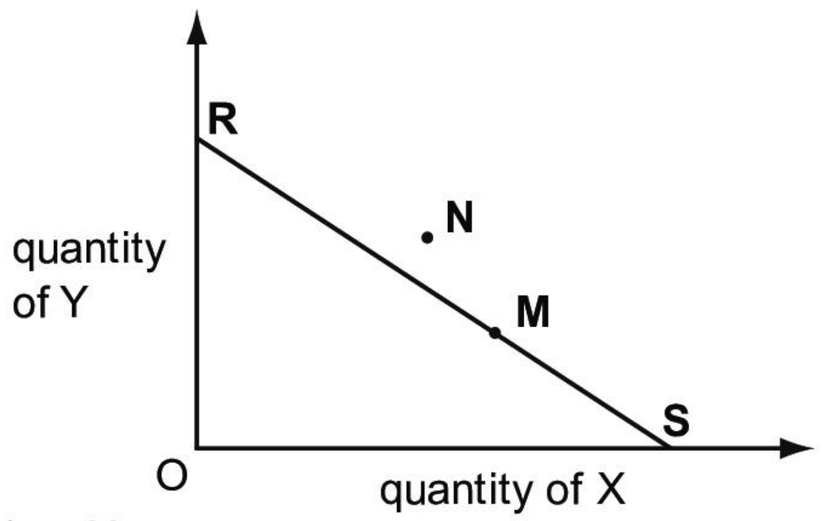


The consumer initially chooses the combination of X and Y indicated by point M on his budget line.
He subsequently chooses the combination indicated by point N.
What could explain the change from point M to point N?

A a change in his tastes
B a decrease in the price of X and a bigger percentage increase in the price of Y
C an increase in the price of X and an increase in his income
D equal percentage increases in his income and in both prices

7. O/N 10/P32/Q3

The line RS in the diagram shows the different combinations of goods X and Y that a Consumer can afford with his present income.



The consumer's original equilibrium is at M.
What could explain a change in his equilibrium position to N?

A a change in his tastes
B a decrease in the price of X and a bigger percentage increase in the price of Y
C an increase in the price of X and an increase in his income
D equal percentage increases in his income and in both prices

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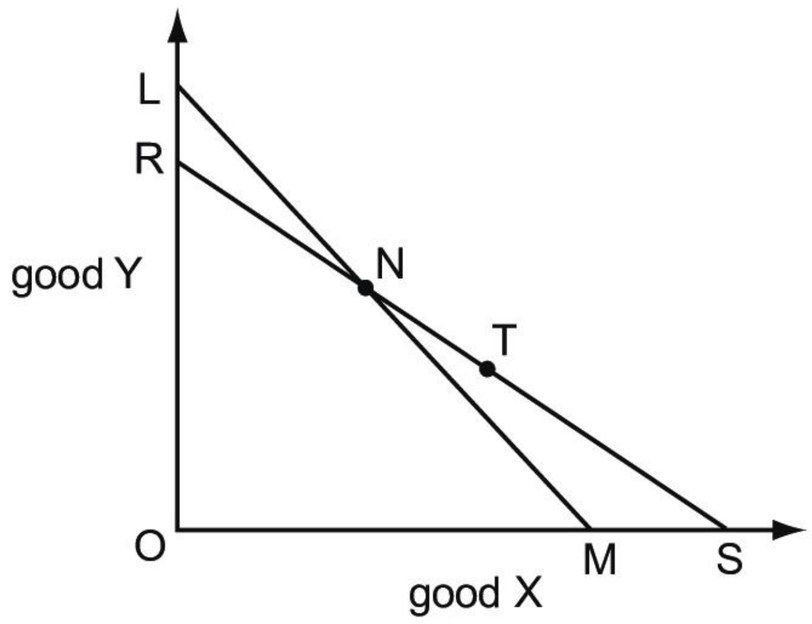
8. O/N 09/P32/Q2

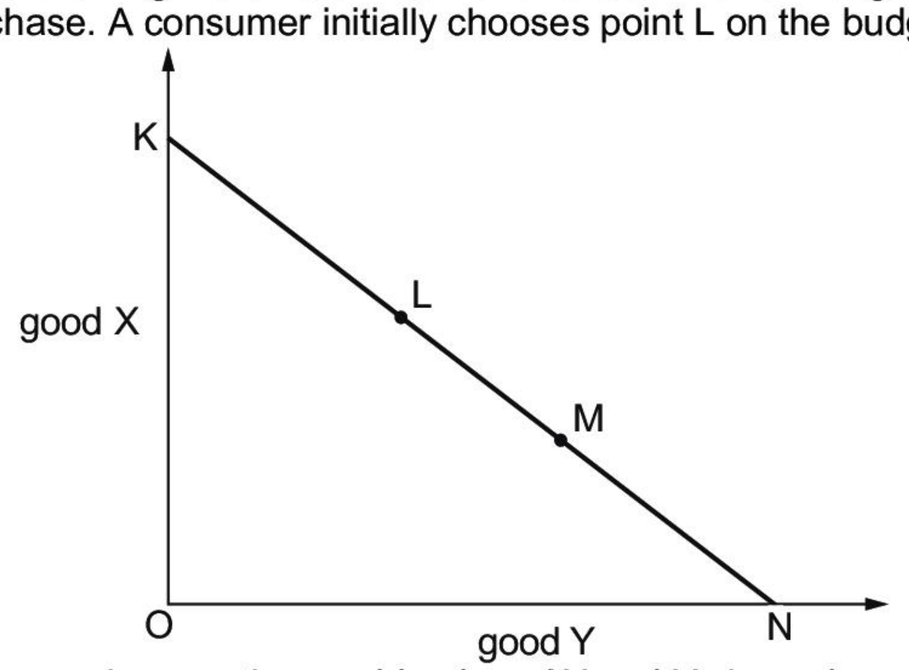
In the diagram, an individual initially chooses combination N on budget line LM.
An increase in his money income accompanied by an increase in the price of good Y causes his budget line to shift to RS, and he now chooses combination T.
How does this affect his economic welfare?



A He is definitely better off because his money income has increased.
B He is definitely worse off because he has to pay more for good Y.
C He is better off since combination T, which he now chooses, was not previously available to him.
D He is worse off since combinations of X and Y along LN are no longer available to him.

9. O/N 02/P3/Q3

In the diagram, KN is a budget line showing the different combinations of two normal goods, X and Y, that a consumer is able to purchase. A consumer initially chooses point L on the budget line.



In a subsequent period, the consumer chooses the combination of X and Y shown by point M.
What could explain this change?

A a change in the consumer's preferences
B an increase in the consumer's income and an increase in the price of Y
C a reduction in the consumer's income
D a reduction in the consumer's income and a reduction in the price of X

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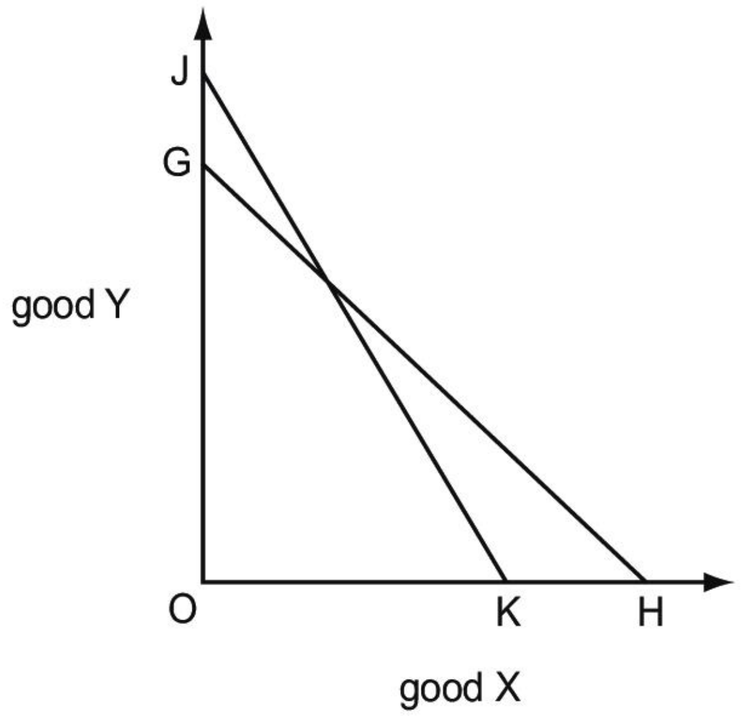
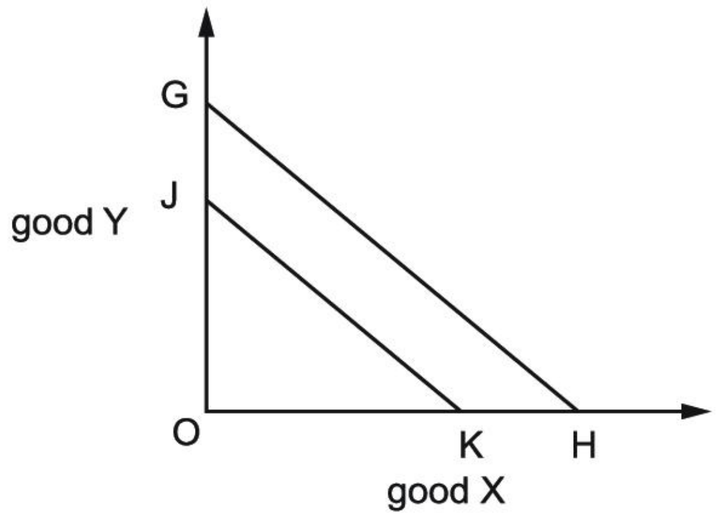
10. O/N 14/P32/Q3, M/J 13/P32/Q3, M/J 10/P32/Q2, M/J 09/P32/Q3, O/N 13/P31/Q3, O/N 05/P3/Q3
In the diagram a consumer's budget line shifts from GH to JK.



Which statement **must be** correct?

A There has been an increase in the consumer's real income.
B There has been a decrease in the consumer's real income.
C Good Y has become relatively more expensive.
D Good X has become relatively more expensive.

11. O/N 14/P33/Q3
In the diagram a consumer's budget line shifts from GH to JK.



Which statement is correct?

A There has been a decrease in the price of both X and Y.
B There has been an increase in the consumer's money income.
C There has been no change in the price of X or Y.
D There has been no change in the price of X relative to the price of Y.

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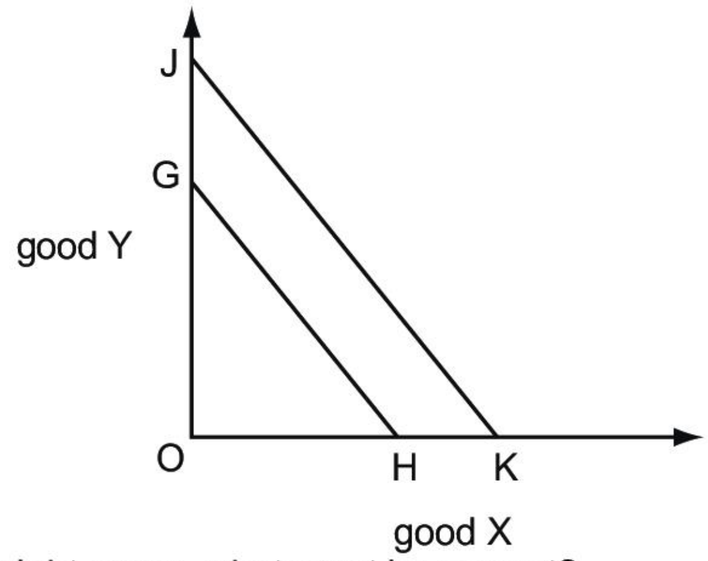
12. O/N 08/P3/Q3, M/J 05/P3/Q3

In the diagram a consumer's budget line shifts from GH to JK.



Regardless of any other changes that might occur, what must be correct?

A There has been an equal proportionate increase in the price of X and Y.

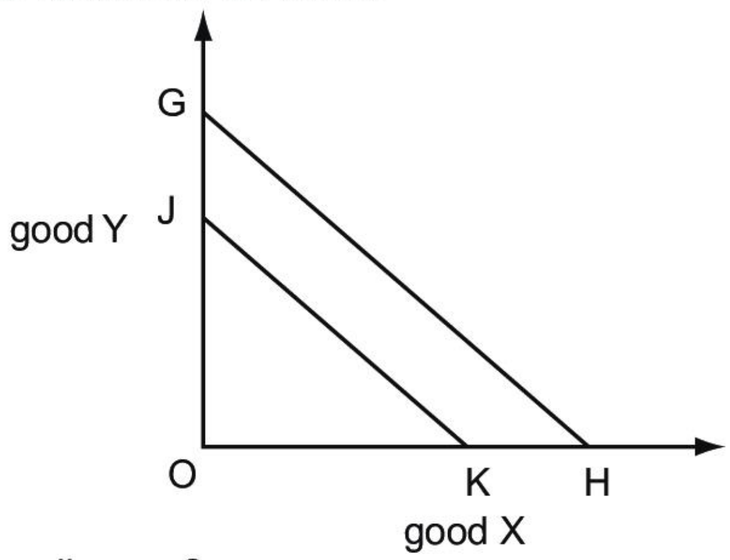
B There has been an equal proportionate decrease in the price of X and Y.

C There has been an increase in the consumer's money income.

D There has been an increase in the consumer's real income.

13. M/J 06/P3/Q2

In the diagram a consumer's budget line shifts from JK to GH.



What can definitely be deduced from the diagram?

A There has been an increase in the consumer's money income.

B There has been a reduction in the price of both X and Y.

C There has been no change in the price of X or Y.

D There has been no change in the price of X relative to the price of Y.

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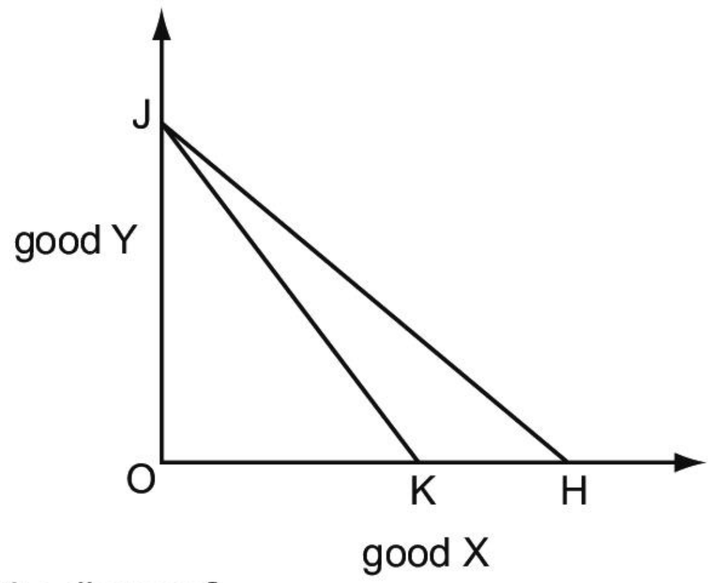
14. M/J 07/P3/Q3

In the diagram a consumer's budget line shifts from JK to JH.



What can definitely be concluded from the diagram?

A There has been no change in the price of good Y.

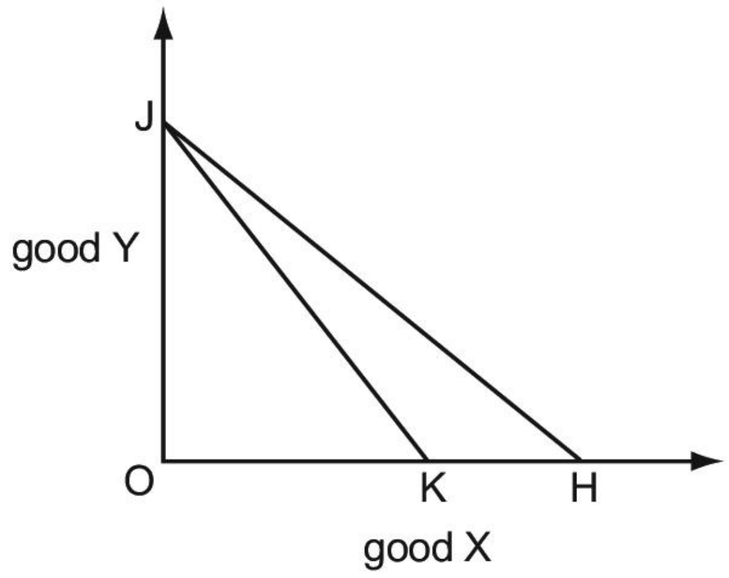
B There has been a reduction in the price of good X.

C There has been an increase in the consumer's money income.

D There has been an increase in the consumer's real income.

15. O/N 12/P32/Q3

In the diagram a consumer's budget line shifts from JK to JH.



What can definitely be concluded from the diagram?

A There has been a decrease in the price of good Y.

B There has been a decrease in the consumer's money income.

C There has been an increase in the consumer's real income.

D There has been no change in the price of good X.

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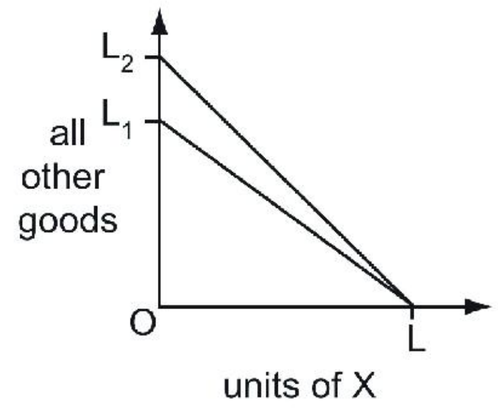
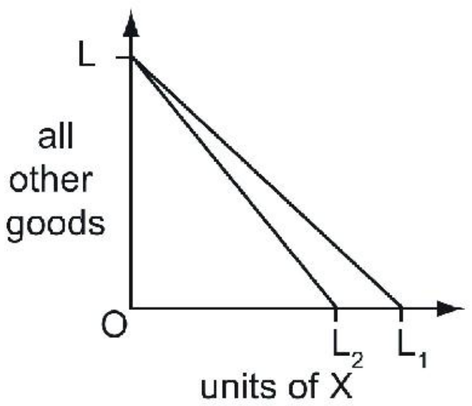
16. M/J 03/P3/Q3

The diagrams show a change in a consumer's budget line from an initial position of LL_1 to LL_2. Which diagram shows the effect of a fall in the price of X, money income remaining unchanged?

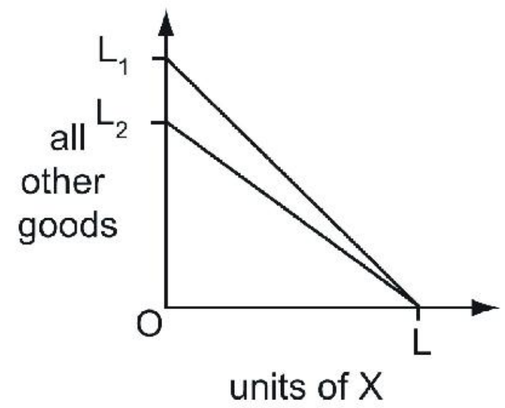
A



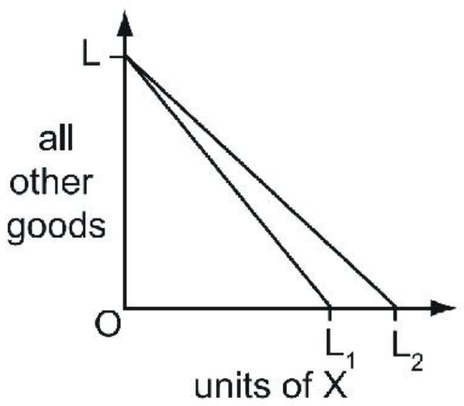
B



C



D



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Answers Section

1. B

Budget constraints can be shown by:

Income = $P_xQ_x + P_yQ_y$

If whole income is spent on 'X'

Then $Q_y=0$ and $P_yQ_y=0$ and Income= P_xQ_x

Therefore P_x = Income/Q_x

At RS budget line Income= \$120 Q_x = 20 hence P_x = 120/20 = \$6

Similarly If whole income is spent on 'y'

Then $Q_x=0$ $P_xQ_x=0$ and Income= P_yQ_y

Therefore P_y = Income/ Q_y

At RS budget line Income= \$120 Q_y = 12 hence P_y = \$120/12= \$10

2. A

Budget constraints can be shown by:

Income = $P_xQ_x + P_yQ_y$

If whole income is spent on 'X'

Then $Q_y=0$ $P_yQ_y=0$

Income= P_xQ_x and P_x = Income/Q_x

Therefore Income= \$30 Q_x = 20 and P_x = 30/20 = \$1.5

Similarly If whole income is spent on 'y'

Then $Q_x=0$ $P_xQ_x=0$

Income= P_yQ_y and P_y = Income/ Q_y

The new price of Y = \$30/12= \$2.5

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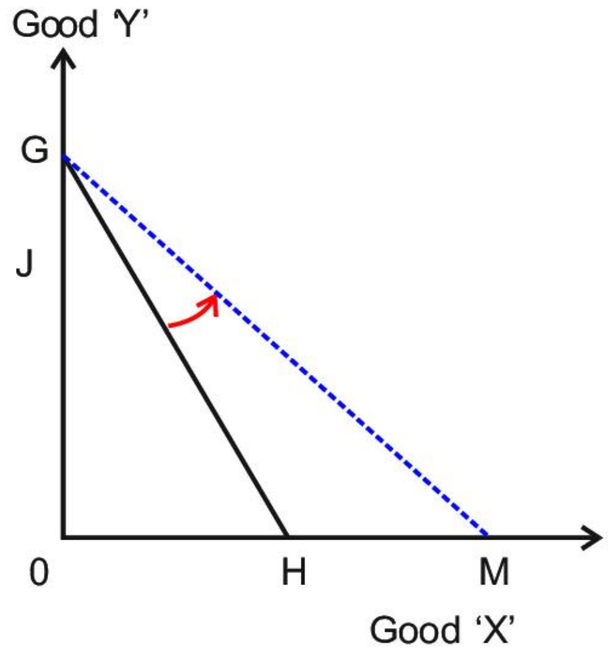
3. A

Approach 1

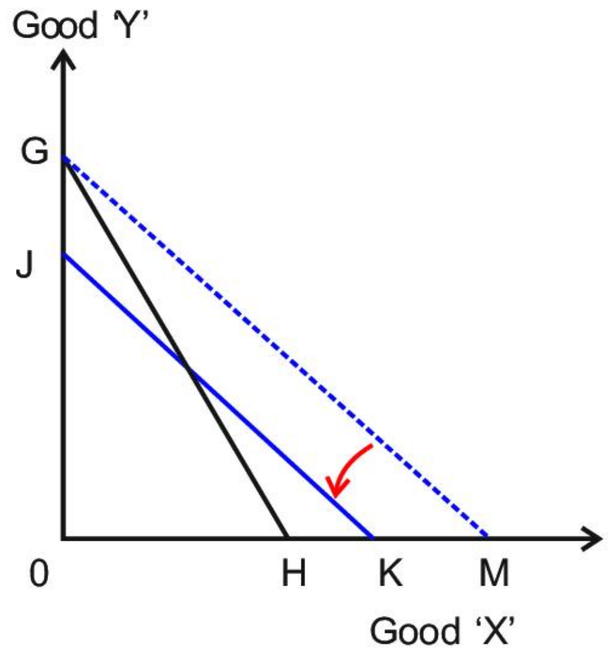
Since in the new budget line the maximum quantity of good X that can be consumed is higher, so this means that the price of good X has decreased. However, there is reduction in maximum quantity of good Y that consumer can consume according to the diagram given. Quantity of good Y can fall by an increase in price of Y or a decrease in money income. As there is no information regarding and increase in price of good Y and therefore is taken constant under ceteris paribus, therefore consumers' money income has to decrease here.

Approach 2

This can be shown by two steps. If there is no change in price of Y and there is increase in consumption of X, as shown by horizontal axis, it shows a possibility of decrease in price of X. This can be shown by pivotal shift in budget line from GH to GM in diagram below.



Moreover there is also a decrease in quantity of good Y which can happen either due to decrease in money income or increase in price of Y. As there is no information regarding and increase in price of good Y and therefore is taken constant under ceteris paribus therefore the only possibility is decrease in money income which can be shown by a parallel inward shift from GM to JK in the diagram below.



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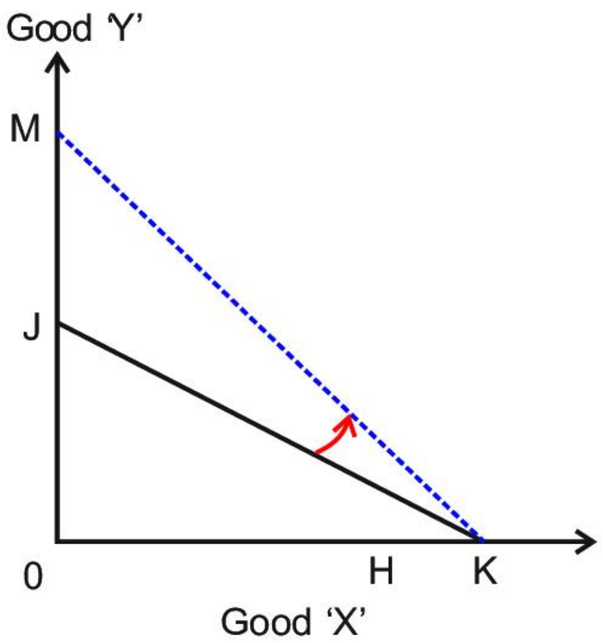
4. A

Approach 1

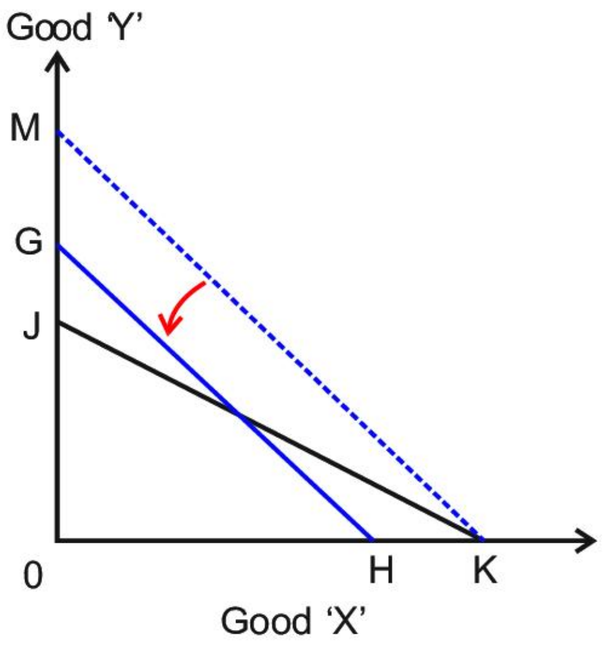
Since in the new budget line the maximum quantity of good Y that can be consumed is higher, so this means that the price of good Y has decreased. However, there is reduction in maximum quantity of good X that consumer can consume according to the diagram given. Quantity of good X can fall by an increase in price of X or a decrease in money income. As there is no information regarding and increase in price of good X and therefore is taken constant under ceteris paribus, therefore consumers' money income has to decrease here.

Approach 2

This can be shown by two steps. If there is no change in price of X and there is increase in consumption of Y, as shown by vertical axis, it shows a possibility of decrease in price of Y. This can be shown by pivotal shift from JK to KM in diagram below.



Moreover there is also a decrease in quantity of good X which can happen either due to decrease in money income or increase in price of X. As there is no information regarding and increase in price of good X and therefore is taken constant under ceteris paribus.Hence, the only possibility is decrease in money income which can be shown by a parallel inward from KM to GH in the diagram below.



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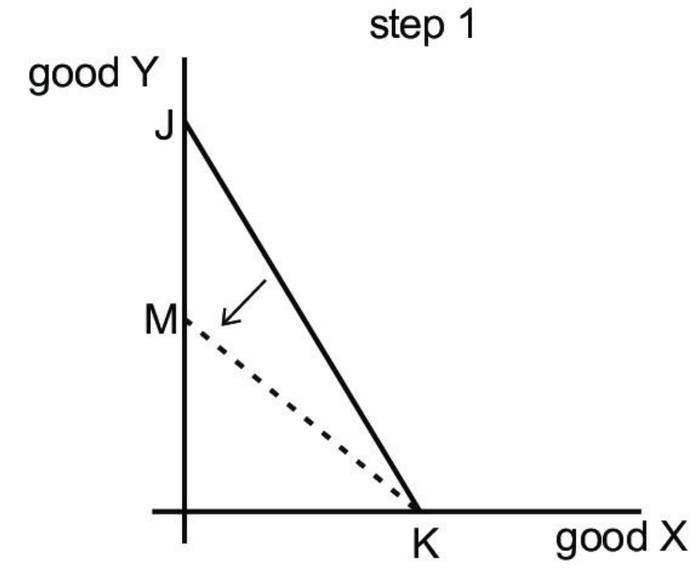
5. D

Approach 1

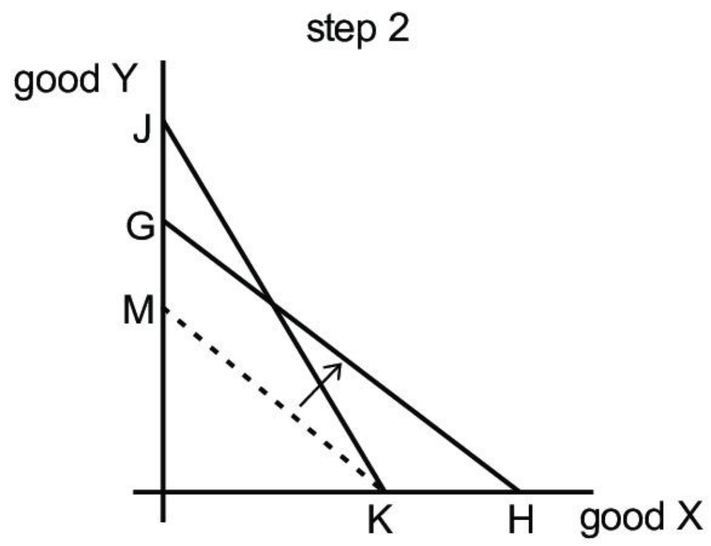
Since in the new budget line the maximum quantity of good Y that can be consumed is lower, so this means that the price of good Y has increased. However, there is increase in maximum quantity of good X that consumer can consume according to the diagram given. Quantity of good X can rise by an decrease in price of X or a increase in money income. As there is no change in price of good X therefore consumers' money income has to increase here.

Approach 2

This can be shown through two steps. If there is no change in price of X and there is a decrease in consumption of good Y as shown by vertical axis, it shows a possibility of an increase in price of Y. This means consumer can consume lesser quantity of good Y. This can be shown by a pivotal shift from JK to JM in the diagram below.



Moreover there is also an increase in good X as well which can happen either due to decrease in price of X or increase in money income. As mentioned in the question price of good X doesn't change therefore the only possibility is increase in money income which can be shown by a parallel shift from KM to GH..



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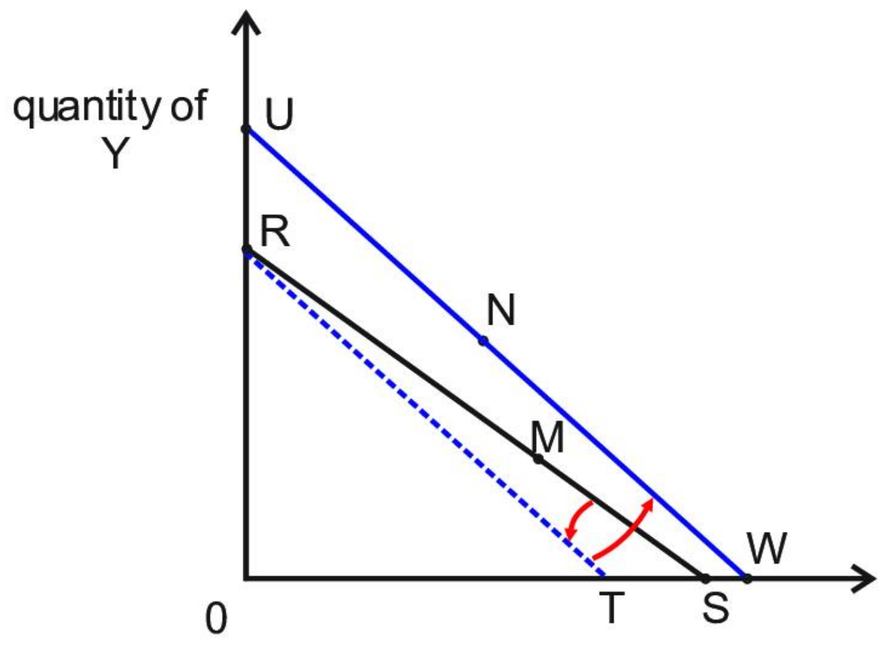
6. C

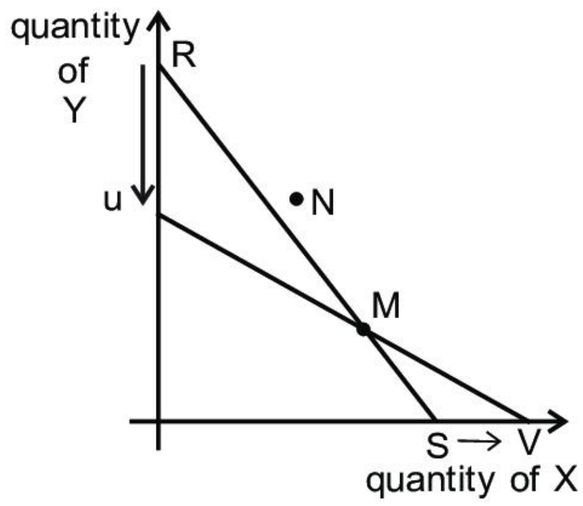
An increase in price of X will shift the budget line pivotal inward from RS to RT as shown in the following diagram.



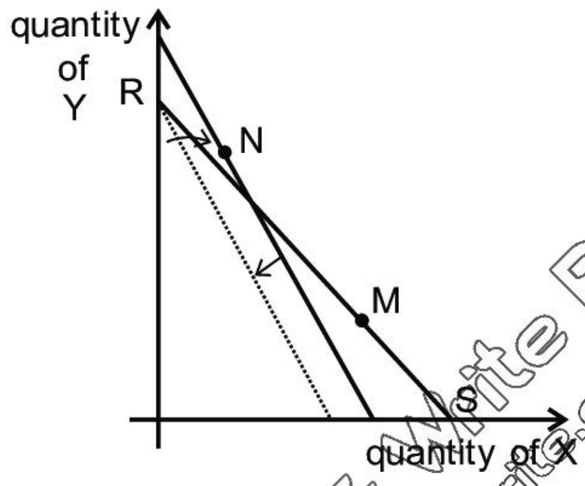
However, an increase in money income will shift it parallel outward to UW which will pass through point N. Hence C is the correct option.

7. C

Shift of equilibrium position to N will require a shift in Budget line. A change in tastes will change preference but not budget line. According to option B, a decrease in price of X will lead to outward pivotal shift of budget line to x axis. An increase in price of y will lead to inward pivotal shift of budget line to y axis. As increase in price of y is greater than decrease in price of X, the new position of budget line will be lower than N as shown below.



According to option C increase in price of X will lead to inward pivotal shift along X axis. Increase in money income will lead to outward parallel shift of the budget line and the new equilibrium position of N will be included in the new budget line as shown below.



According to option D there would be no shift in budget line.

8. C

From the diagram the new combination at T is better off becomes point 'T' is higher than old budget line LM.

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9. A

From the diagram, the budget line does not shift, rather there is a movement along budget line which is shown by a change in preferences of consumer. The consumer has chosen a different preference for consumption for good X and good Y. B,C and D will lead to shifts in the budget line.

10. D

We can never be **sure** as to what was the cause of any kind of shift in the budget line , due to the fact that every kind of shift in the budget line has more than one possible reason.In this case there are two possible reasons:

- The price of good X increased and the price of good Y decreased.
- The price of good X increases and money income increased.

Any of the above possibilities can not be DEFINITELY, or MUST BE or CERTAINLY or NECESSARILY true because of existence of other possibility.

After a shift in the budget line we can only be certain about the consequences—i.e., the effects on real income and on relative prices. In this case real income is uncertain but good X is now relatively expensive (can afford less of maximum of good X on new budget line) and good Y is relatively cheaper (can afford more of maximum of good Y on new budget line).

11. D

We can never be **sure** as to what was the cause of any kind of shift in the budget line , due to the fact that every kind of shift in the budget line has more than one possible reason.In this case there are two possible reasons:

- Money income decreased.
- The prices of goods x and y both rose by the same proportion.

Any of the above possibilities can not be DEFINITELY, or MUST BE or CERTAINLY or NECESSARILY true because of existence of other possibility.

After a shift in the budget line we can only be certain about the consequences—i.e., the effects on real income and on relative prices. In this case real income has decreased and there is no change in relative prices.

12. D

We can never be **sure** as to what was the cause of any kind of shift in the budget line , due to the fact that every kind of shift in the budget line has more than one possible reason.In this case there are two possible reasons:

- Money income increased.
- The prices of goods x and y both fell by the same proportion.

Any of the above possibilities can not be DEFINITELY, or MUST BE or CERTAINLY or NECESSARILY true because of existence of other possibility.

After a shift in the budget line we can only be certain about the consequences—i.e., the effects on real income and on relative prices. In this case real income has increased and there is no change in relative prices.

13. D

We can never be **sure** as to what was the cause of any kind of shift in the budget line , due to the fact that every kind of shift in the budget line has more than one possible reason.In this case there are two possible reasons:

- Money income increased.
- The prices of goods x and y both fell by the same proportion.

Any of the above possibilities can not be DEFINITELY, or MUST BE or CERTAINLY or NECESSARILY true because of existence of other possibility.

After a shift in the budget line we can only be certain about the consequences—i.e., the effects on real income and on relative prices. In this case real income has icreased and there is no change in relative prices.

14. D

We can never be **sure** as to what was the cause of any kind of shift in the budget line , due to the fact that every kind of shift in the budget line has more than one possible reason.In this case there are two possible reasons:

- The price of good X fell.
- The price of good Y increases and money income increased.

Any of the above possibilities can not be DEFINITELY, or MUST BE or CERTAINLY or NECESSARILY true because of existence of other possibility.

After a shift in the budget line we can only be certain about the consequences—i.e., the effects on real income and on relative prices. In this case real income increases and good X is now relatively cheaper (can afford more of maximum of good X on new budget line) than good Y.

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15. C

We can never be **sure** as to what was the cause of any kind of shift in the budget line , due to the fact that every kind of shift in the budget line has more than one possible reason.In this case there are two possible reasons:

- The price of good X fell.
- The price of good Y increases and money income increased.

Any of the above possibilities can not be DEFINITELY, or MUST BE or CERTAINLY or NECESSARILY true because of existence of other possibility.

After a shift in the budget line we can only be certain about the consequences—i.e., the effects on real income and on relative prices. In this case real income increases and good X is now relatively cheaper (can afford more of maximum of good X on new budget line) than good Y.

16. D

Reduction in price of X will increase the consumer's ability to consume good X but leaves the ability to consume Y unchanged. Therefore decrease in price of X will lead to pivotal rightward shift along x axis.

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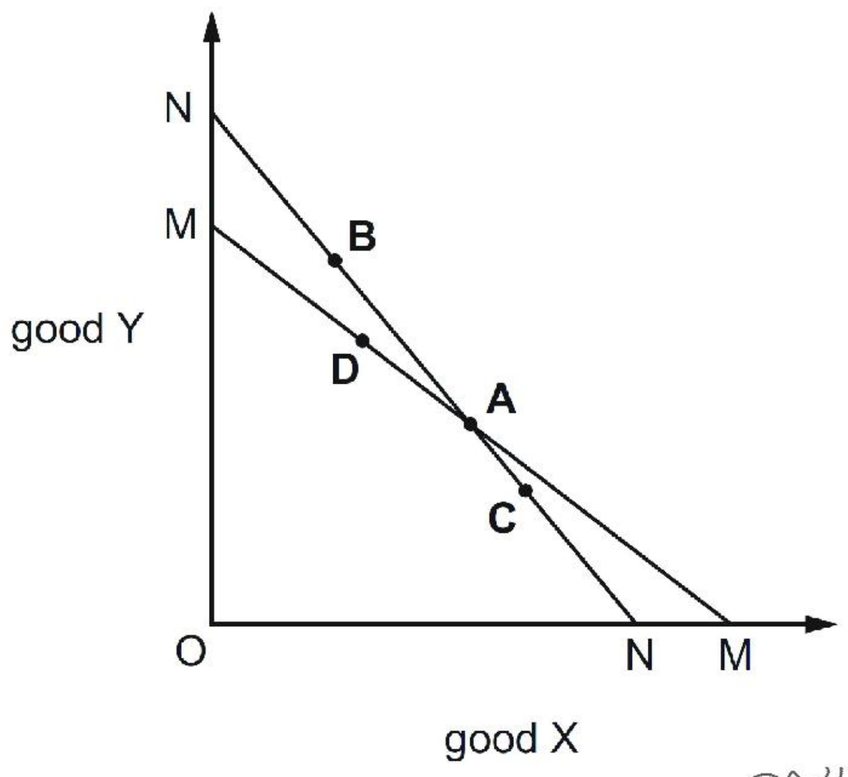
1.4 Indifference curve analysis

1. **M/J 18/P33/Q4, O/N 13/P33/Q3, O/N 11/P32/Q4, O/N 07/P3/Q3, M/J 04/P3/Q2**
What is **not** held constant when calculating the income effect of a change in the price of a good?
A the consumer's money income
B the consumer's preferences
C the consumer's real income
D the prices of other goods

2. **O/N 12/P33/Q3**
Why will the quantity demanded increase when the price of a normal good falls?
A The income and substitution effects are both positive.
B The income and substitution effects are both negative.
C The negative income effect is greater than the positive substitution effect.
D The positive income effect is greater than the negative substitution effect.

3. **O/N 12/P31/Q3**
When the price of a good changes, the effect on quantity demanded is the result of an income and a substitution effect.
Which statement about these effects is always correct?
A For inferior goods, the income effect and substitution effect work in the same direction.
B For inferior goods, the substitution effect outweighs the income effect.
C For normal goods, the income effect and substitution effect work in the same direction.
D For normal goods, the income effect outweighs the substitution effect.

4. **M/J 16/P31/Q5**
The diagram shows budget lines of a consumer choosing between two goods, X and Y. Initially the budget line is MM and the consumer's preferred position is at point A. Subsequently the money prices of both goods change shifting the budget line to NN.
Which point could represent the preferred position of the consumer after the change in prices if their tastes remained unchanged?



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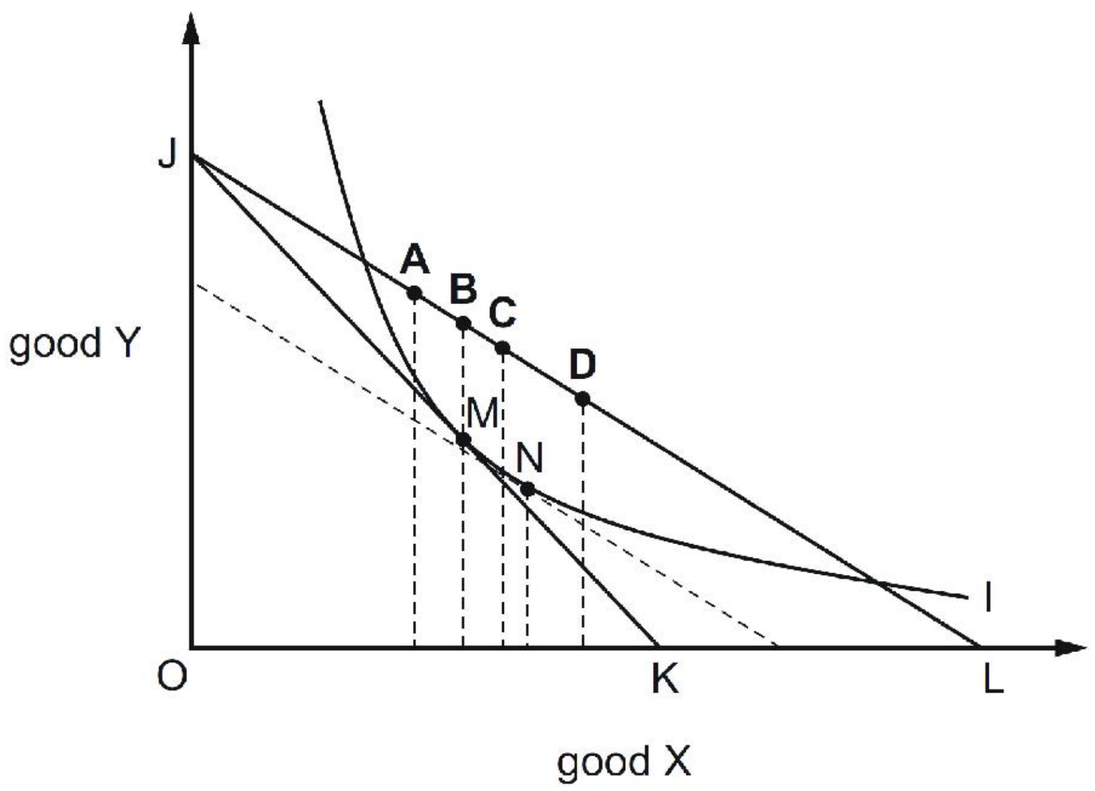
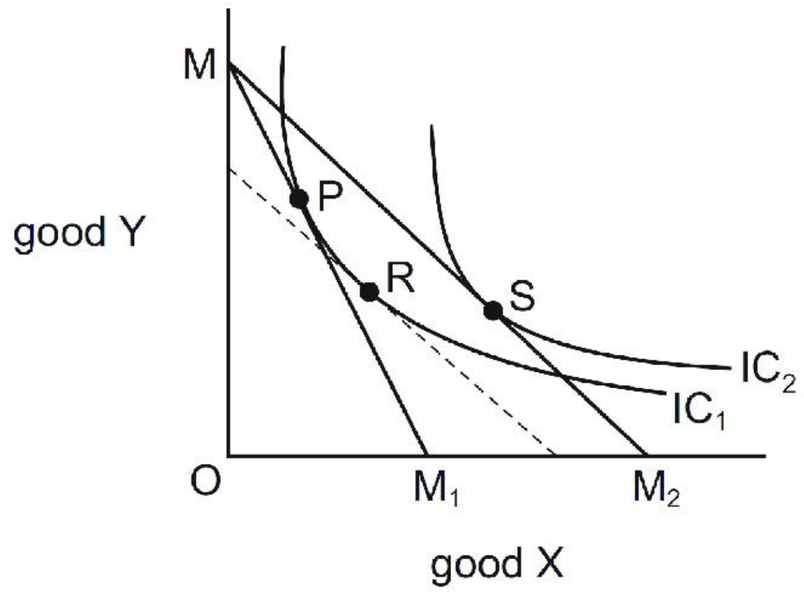
5. M/J 16/P32/Q4

In the indifference curve diagram point M is the consumer's initial equilibrium and MN is the substitution effect of a fall in the price of good X.
If good X is a Giffen good which point will be the consumer's new equilibrium point after the fall in the price of good X?



6. M/J 16/P33/Q4

The diagram shows two indifference curves and two budget lines for two goods X and Y.



The initial position is P. P-R is a substitution effect. R-S is an income effect.
What type of good is good X?

A a Giffen good **B** a luxury good **C** a normal good **D** an inferior good

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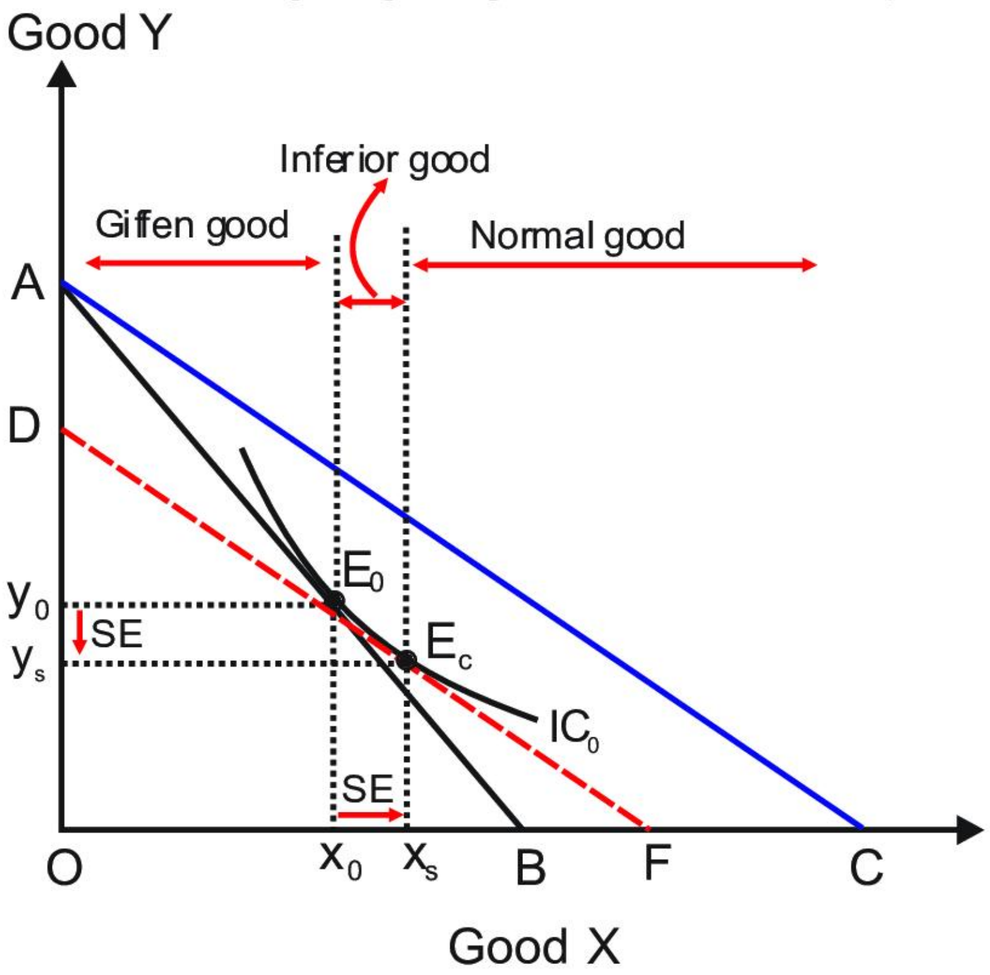
Answers Section

1. C
As per definition, Income effect is the change in consumption of a product due to change in real income of consumer if price of product changes. Therefore consumer's real income is not held constant.

2. A
Substitution effect of a price fall is always positive regardless of the type of good is normal, inferior or giffen. However, direction and relative strength of income effect to substitution effect determines the type of good. In case of normal goods, with the decrease in price, real income increases and consumer buy of it and therefore income effect is also positive.

3. C
Substitution effect of a price fall is always positive regardless of the type of good is normal, inferior or giffen. However, direction and relative strength of income effect to substitution effect determines the type of good. In case of normal goods, with the decrease in price, real income increases and consumer buy of it and therefore income effect is also positive. In case of inferior and giffen goods, income effect is negative, however income effect does not outweigh substitution effect in inferior goods but do outweigh in giffen goods. It can also be explained by following diagram:



4. B
A position that was not affordable before but is attainable now will be preferred position as there will higher indifference curve and greater utility. Only point B is attainable now but not with old budget line MM.

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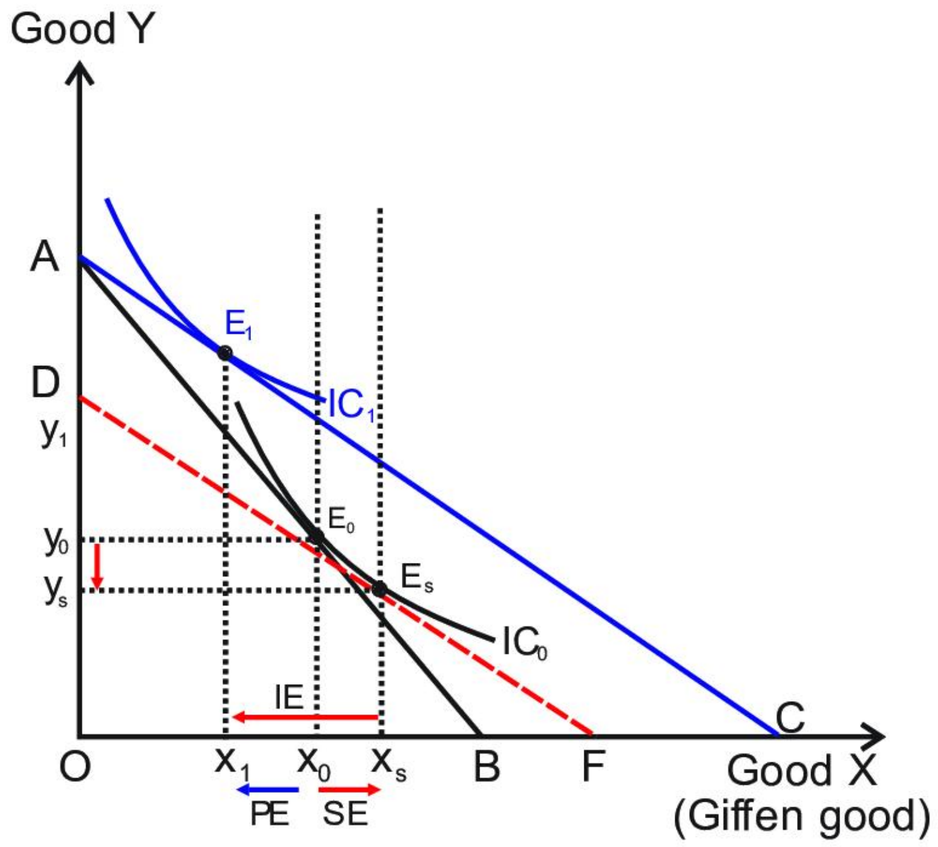
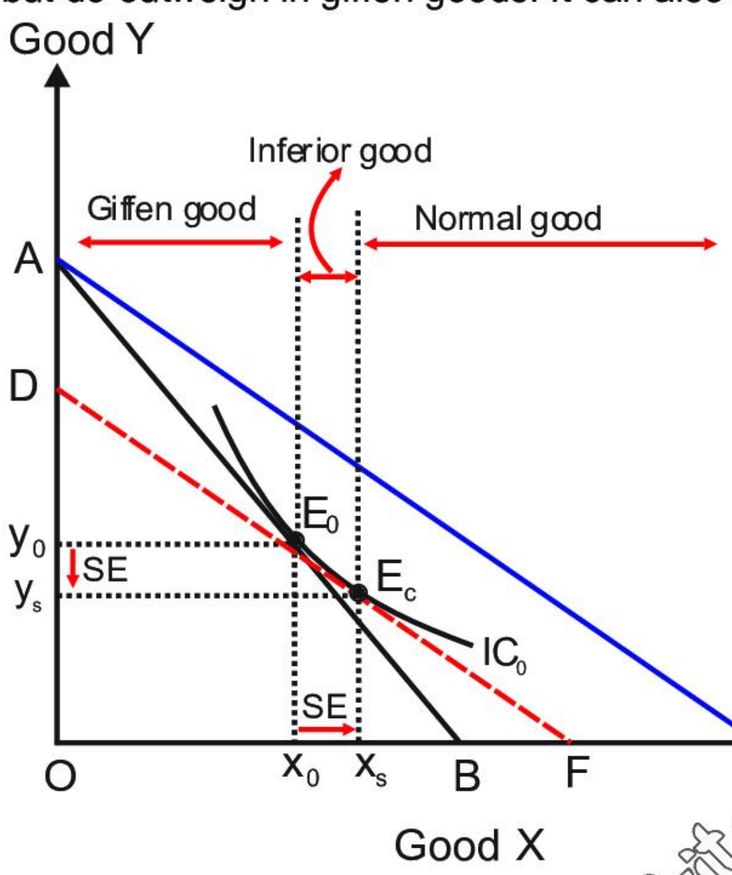
5. A

Substitution effect of a price fall is always positive regardless of the type of good is normal, inferior or giffen. However, direction and relative strength of income effect to substitution effect determines the type of good. In case of normal goods, with the decrease in price, real income increases and consumer buy of it and therefore income effect is also positive. In case of inferior and giffen goods, income effect is negative, however income effect does not outweigh substitution effect in inferior goods but do outweigh in giffen goods. It can also be explained by following diagram:



6. C

Substitution effect of a price fall is always positive regardless of the type of good is normal, inferior or giffen. However, direction and relative strength of income effect to substitution effect determines the type of good. In case of normal goods, with the decrease in price, real income increases and consumer buy of it and therefore income effect is also positive. In case of inferior and giffen goods, income effect is negative, however income effect does not outweigh substitution effect in inferior goods but do outweigh in giffen goods. It can also be explained by following diagram:



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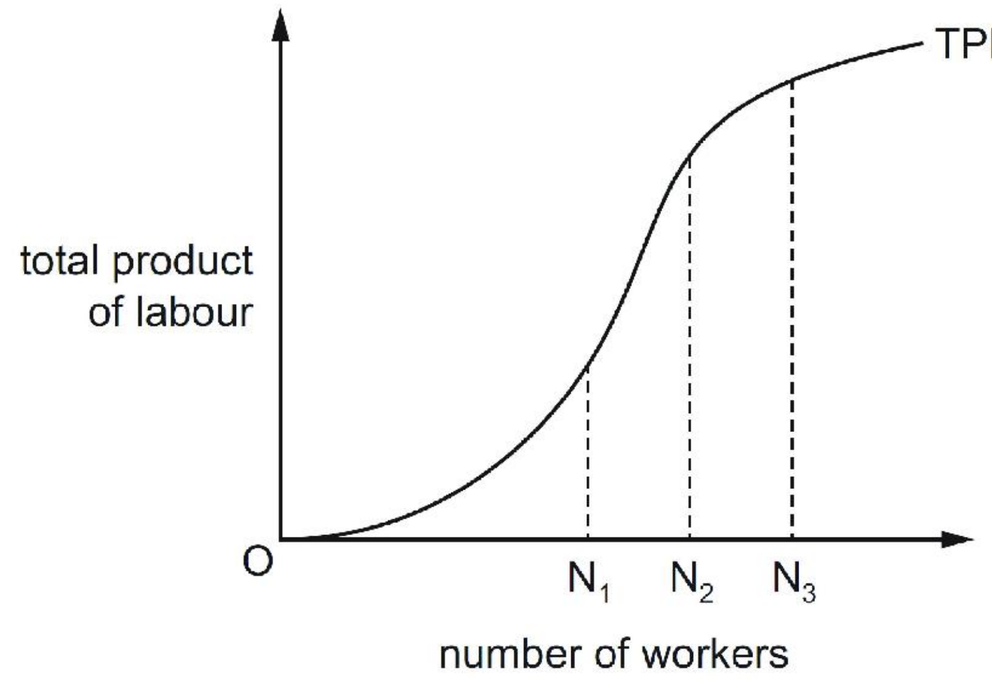
Unit 2 Production & Cost

2.1 Law of diminishing returns

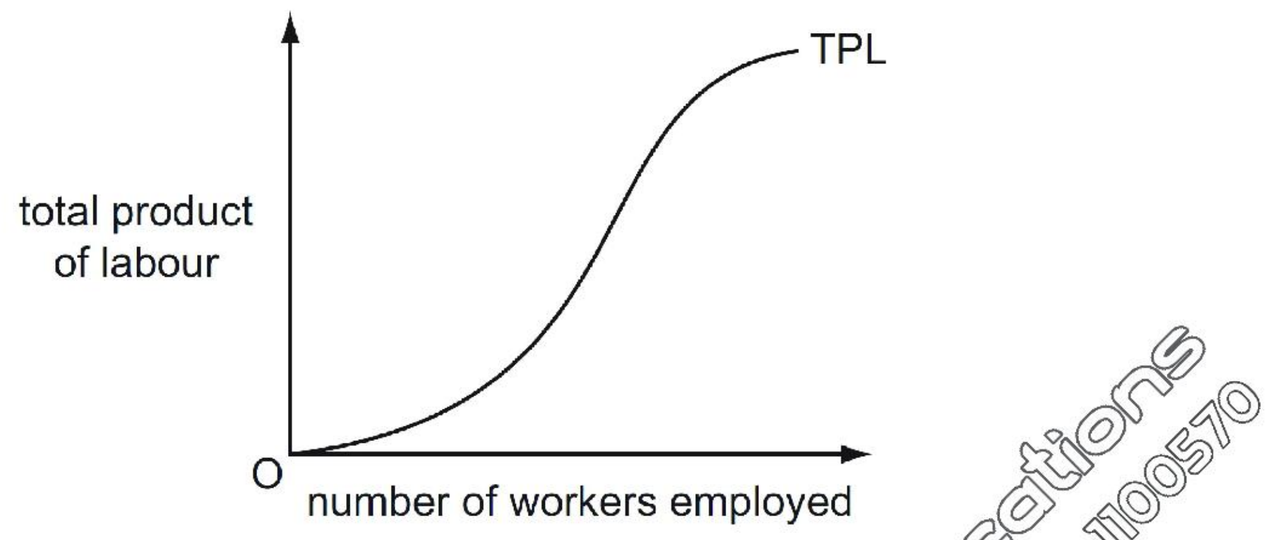
1. M/J 16/P33/Q15, O/N 12/P31/Q4
The diagram shows a firm's total product of labour (TPL) curve.



Which statement is correct?

A The average product of labour is maximised at ON_1.
B The average product of labour is maximised at ON_2.
C The marginal product of labour is maximised at ON_2.
D The marginal product of labour is maximised at ON_3.

2. M/J 15/P32/Q4
The diagram shows the total product of labour (TPL) curve for a firm whose only variable factor input is labour.



What explains the shape of the curve?

A diminishing marginal disutility of work
B increasing marginal disutility of work
C technical diseconomies of scale
D the law of variable proportions

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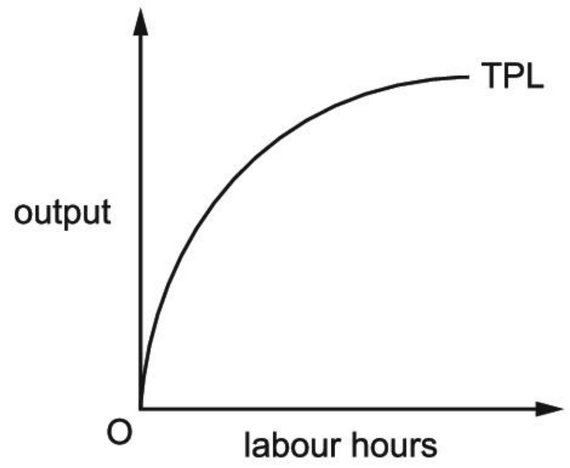
3. O/N 14/P31/Q4

The short-run production function in the diagram shows the relationship between the total product of labour and labour hours worked.

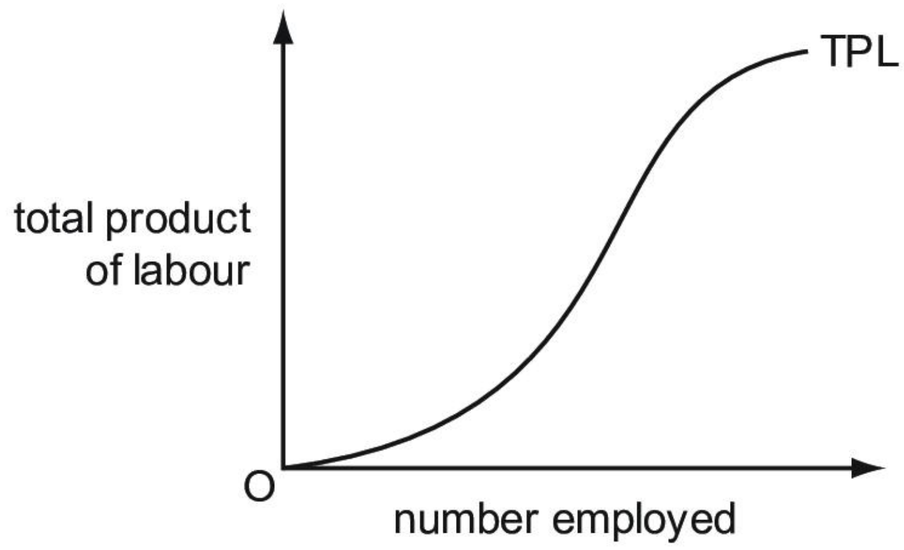


What is held constant when drawing this function?

A the average price level
B the hourly wage
C the size of the labour force
D the stock of capital

4. M/J 12/P31/Q5

The diagram shows the total product of labour curve for a firm whose only variable factor input is labour.

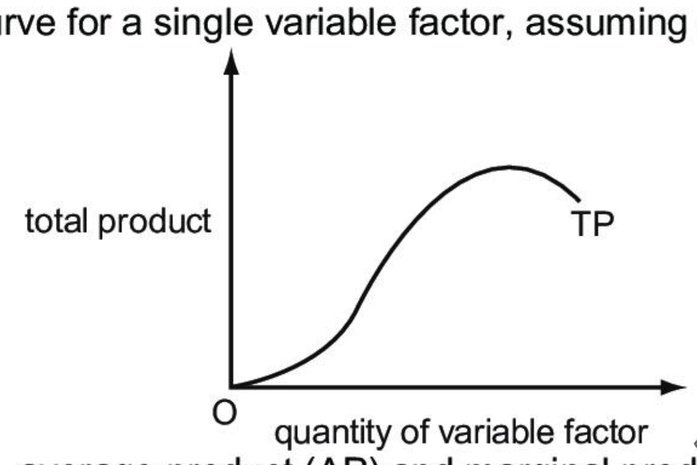


What explains the shape of the curve?

A diminishing marginal disutility of work
B increasing marginal disutility of work
C technical diseconomies of scale
D the law of variable proportions

5. O/N 03,M/J 07/P3/Q4

The diagram shows the total product curve for a single variable factor, assuming all other factor inputs are held constant.



In which order do the total product (TP), average product (AP) and marginal product (MP) begin to decrease as the input of the variable factor is increased?

	first	second	third
A	AP	MP	TP
B	AP	TP	MP
C	MP	AP	TP
D	MP	TP	AP

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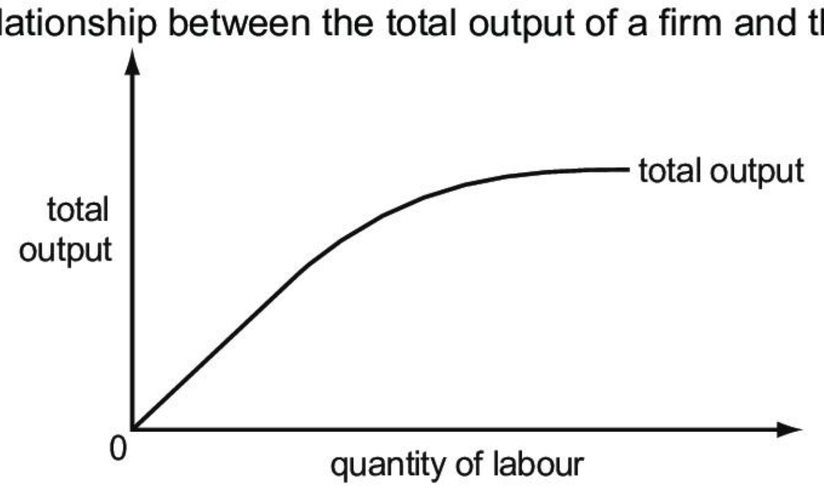
6. O/N 91, O/N 07/P3/Q4

The diagram shows the short-run relationship between the total output of a firm and the quantity of labour.



What can be concluded about the firm?

A It is experiencing increasing returns to scale.

B It is experiencing constant returns to scale.

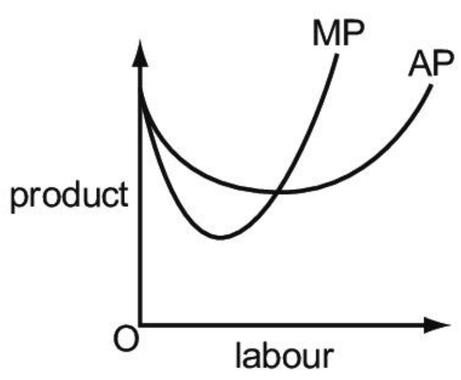
C The marginal physical product of capital is constant.

D The marginal physical product of labour eventually diminishes.

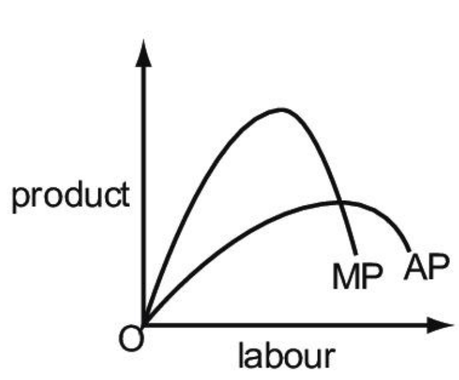
7. M/J 94,O/N 00,M/J 11/P3/Q10

Which diagram correctly shows the relationship between the average product (AP) and the marginal product (MP) of labour given that the quantities of other factor inputs remain constant?

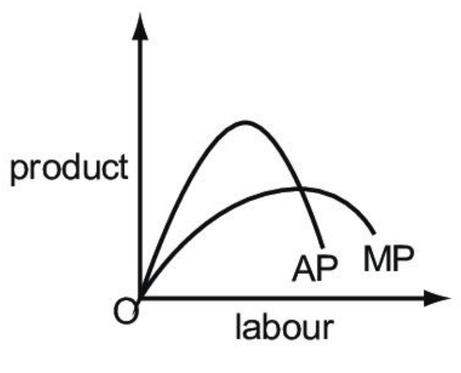
A



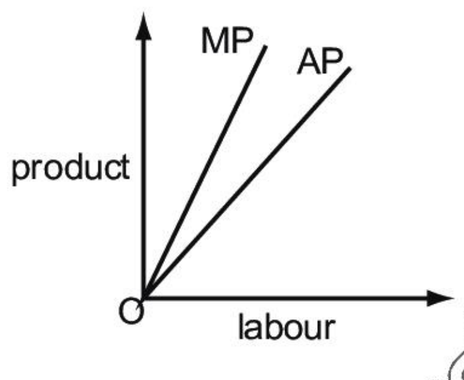
B



C



D



8. O/N 05/P3/Q4

The table shows the output of chairs at a factory when different numbers of workers are employed.

Diminishing marginal returns to labour will set in when

Number of workers	**0**	**1**	**2**	**3**	**4**	**5**
Number of chairs produced	0	7	17	29	38	42

A the second worker is employed.

B the third worker is employed.

C the fourth worker is employed.

D the fifth worker is employed.

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9. M/J 14/P32/Q3

The table shows the output of chairs at a factory when different numbers of workers are employed.

number of workers	**1**	**2**	**3**	**4**	**5**
number of chairs produced	6	17	27	32	30

Diminishing marginal returns to labour will set in when

A the second worker is employed.
B the third worker is employed.
C the fourth worker is employed.
D the fifth worker is employed.

10. M/J 13/P31/Q4

The table shows the output of chairs at a factory when different numbers of workers are employed.

Number of workers	0	1	2	3	4	5
Number of chairs product	0	7	17	26	34	40

Diminishing marginal returns to labour will set in when

A the second worker is employed.
B the third worker is employed.
C the fourth worker is employed.
D the fifth worker is employed.

11. O/N 15/P31/Q3

Which statement explains why labour is subject to the law of diminishing returns in the short run?

A As additional workers are hired, total output decreases.
B As employment increases, the capital-labour ratio falls.
C As employment increases, wage rates will have to be increased.
D As output increases, eventually diseconomies of scale will occur.

12. O/N 04, O/N 08/P3/Q5

Which statement explains why in the short run labour is subject to the law of diminishing returns?

A As additional workers are hired, output decreases.
B As employment increases, the capital-labour ratio falls.
C As employment increases, wage rates will have to be increased.
D As output expands, sooner or later diseconomies of scale will set in.

13. O/N 17/P31/Q4, O/N 11/P33/Q30, O/N 11/P31/Q1

Which statement describes the operation of the law of variable proportions?

A As all factors are increased in proportion, the marginal cost of production increases.
B As all factors are increased in proportion, total product rises at a diminishing rate.
C As more of a variable factor is added to a fixed factor, the marginal cost of production diminishes.
D As more of a variable factor is added to a fixed factor, total product rises at a diminishing rate.

14. O/N 09/P32/Q3

Which statement describes a situation in which a rise in input of factor X, all other factors being constant, results in no change in a firm's output?

A There are diminishing returns to factor X.
B Returns to scale are constant.
C There are diseconomies of scale.
D The marginal product of X is zero.

15. O/N 93/P3

'If constant amount of a variable factors are added to fixed quantities of other factor, the marginal returns to the variable factor will eventually diminish.'

A decreasing returns to scale.
B diminishing marginal substitution.
C diminishing marginal utility.
D variable proportions

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16. O/N 90/P3

"The addition to output which results from increasing the quantity of a factor of production by one unit, the quantities of all other factor inputs remaining constant".
This is a definition of

A marginal factor cost
B marginal physical product
C marginal revenue
D marginal revenue product

17. O/N 17/P31/Q12, M/J 05/P3/Q4

According to the law of diminishing returns, what happens as more of a variable factor is combined with a fixed factor?

A An increase in the price of the variable factor will eventually result in an increase in production costs.
B A reduction in the quality of the variable factor will eventually result in an increase in production costs.
C Fewer units of the variable factor will be needed to produce equal increases in output.
D The proportions in which the factors are combined will eventually result in progressively smaller increases in output.

18. O/N 98/P3

In production theory, what determines the length of the 'short run'

A the degree of substitutability between capital and labour.
B the ratio of capital to labour.
C the time it takes before the fixed factor can be altered.
D the time it takes before the variable factor can be altered.

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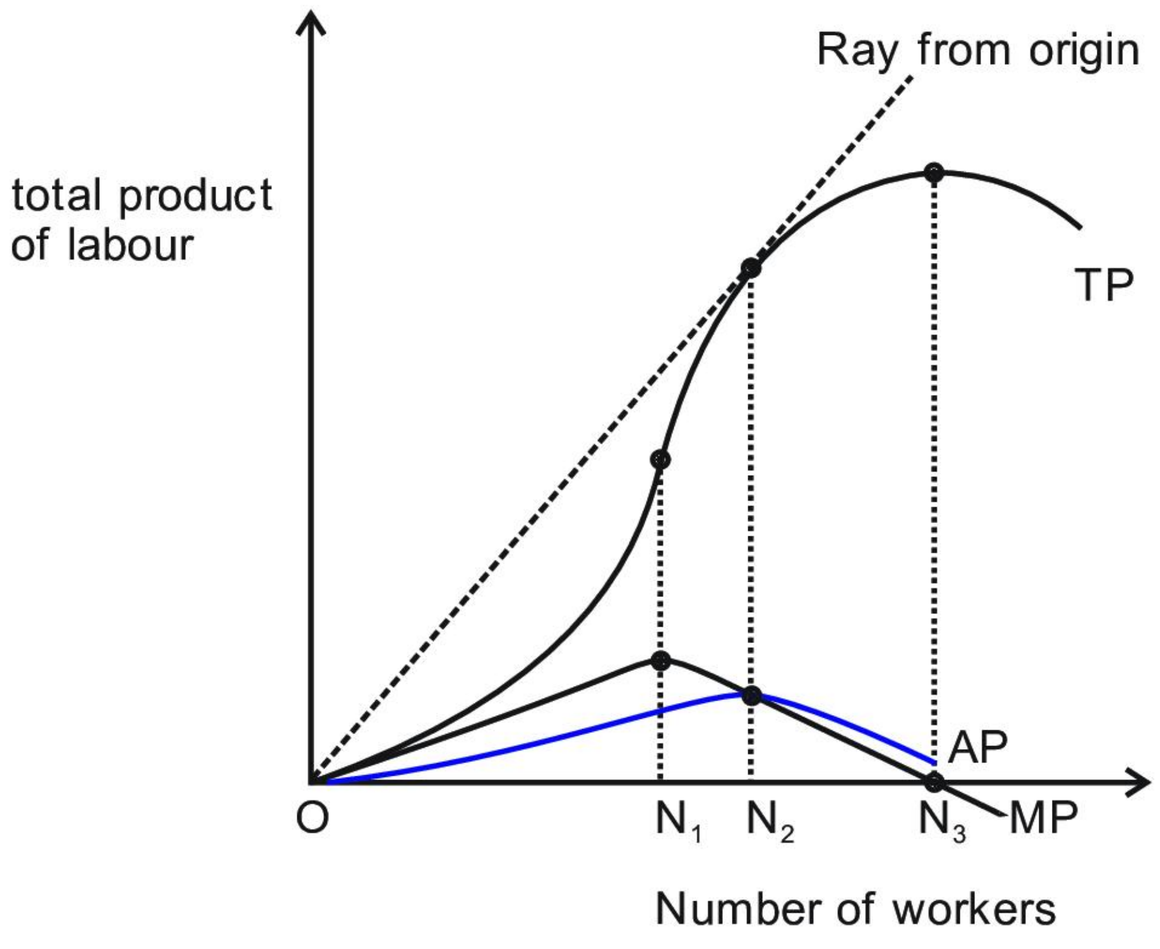
Answers Section

1. B

Marginal product is maximised where total product starts increasing with decreasing rate at point ON_1. Average product is maximised where ray from origin is tangent to total product as shown by point ON_2 in the diagram below.



2. D

Law of diminishing returns is also known as law of variable proportions. According to law of diminishing returns (LDR), in short run labour is kept as a variable factor whereas capital is held as fixed factor of production. According to LDR, as we keep on increasing the variable factor (labour), the marginal product (MP) and average product (AP) may rise initially, but eventually diminish. In other words, total product initially increases with an increasing rate but later on with a decreasing rate.

3. D

The short-run production function is the relationship between the variable factor (such as labour) and output when all other factors (such as land , capital and technology) are kept constant. Hence, the stock of capital is held constant according to the question statement.

4. D

Law of diminishing returns is also known as law of variable proportions. According to law of diminishing returns (LDR), in short run labour is kept as a variable factor whereas capital is held as fixed factor of production. According to LDR, as we keep on increasing the variable factor (labour), the marginal product (MP) and average product (AP) may rise initially, but eventually diminish. In other words, total product initially increases with an increasing rate but later on with a decreasing rate.

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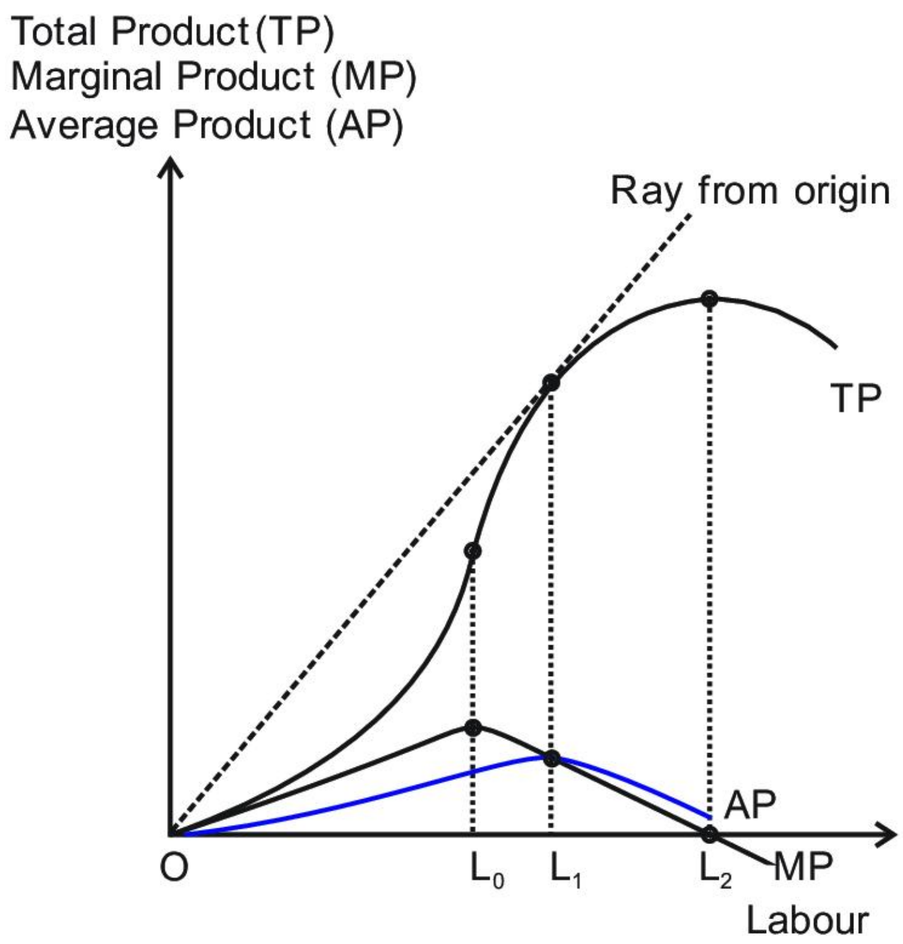
5. C
This can be shown through a diagram.



According to diagram MP decreases first at L_0 then AP decreases at L_1 and TP decreases at L_2.

6. D
According to diagram, total output increases with decreasing rate. As marginal product is the rate of increase of total product (output) therefore marginal product has diminished.

7. B
As long as marginal produce (MP) is greater than average product (AP) average product increase. When MP is lesser than AP, AP decreases. The point where MP is equal to AP, AP is maximum. This relationship is shown in option B only. Moreover, MP intersects AP from maximum and it is true only in option B.

8. C
The table helps to explain situation below.

Workers	**0**	**1**	**2**	**3**	**4**	**5**
Total product (chairs)	0	7	17	29	38	42
Marginal product	-	7	10	12	9	4

In the question, number of chairs is total product.Diminishing returns starts when marginal product starts decreasing. MP is change in total product. As seen from table, MP first decreases at 4th worker and therefore diminishing marginal returns will set in.

9. B
Marginal returns in this example will be the increase in output produced by the new worker.

No. of workers	**1**	**2**	**3**	**4**	**5**
Total output	6	17	27	32	30
Marginal output	6	11	10	5	-2

Diminishing marginal returns sets in when additional units of labor result in a lower marginal return. In other words, the new worker produces less than the previous one. Diminishing returns start at the third worker, as the 3rd worker produces 10 chairs whereas the 2nd worker produced 11 chairs.

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10. B
Marginal returns in this example will be the increase in output produced by the new worker.

Number of workers	**0**	**1**	**2**	**3**	**4**	**5**
Number of chairs product	0	7	17	26	34	40
Marginal output	-	7	10	9	8	6

Diminishing marginal returns sets in when additional units of labor result in a lower marginal return. In other words, the new worker produces less than the previous one. Diminishing returns start at the third worker, as the 3rd worker produces 9 chairs whereas the 2nd worker produced 10 chairs.

11. B
According to law of diminishing returns (LDR), in short run labour is kept as a variable factor whereas capital is held as fixed factor of production. According to LDR, as we keep on increasing the variable factor (labour), the marginal product (MP) and average product (AP) may rise initially due to more division of labour, but eventually diminish because of exhaustion of fixed factor.

The capital to labour ratio decreases throughout with increase in labour because capital is held as fixed factor. With the every increase in labour, there is less capital available per unit of labour as shown in following example.

Labour	Capital	Capital:Labour
1	4	4/1 = 4
2	4	4/2 = 2
3	4	4/3 = 1.33
4	4	4/4 = 1

12. B
According to law of diminishing returns (LDR), in short run labour is kept as a variable factor whereas capital is held as fixed factor of production. According to LDR, as we keep on increasing the variable factor (labour), the marginal product (MP) and average product (AP) may rise initially, but eventually diminish. In other words, total product initially increases with an increasing rate but later on with a decreasing rate.
The capital to labour ratio decreases throughout with increase in labour because capital is held as fixed factor. With the every increase in labour, there is less capital available per unit of labour as shown in following example.

Labour	Capital	Capital:Labour
1	4	4/1 = 4
2	4	4/2 = 2
3	4	4/3 = 1.33
4	4	4/4 = 1

A option states that as additional workers are hired output increase however, first output increases but after wards decreases. C is wrong because LDR doesn't address wage rates. D is also incorrect because diseconomies of scale are subject to long run only whereas LDR operates in short run.

13. D
Law of diminishing returns is also known as law of variable proportions. According to law of diminishing returns (LDR), in short run labour is kept as a variable factor whereas capital is held as fixed factor of production. According to LDR, as we keep on increasing the variable factor (labour), the marginal product (MP) and average product (AP) may rise initially, but eventually diminish. In other words, total product initially increases with an increasing rate but later on with a decreasing rate.

14. D
If there is no change in output (total product) with a rise in factor of production, this means marginal product of X is zero as marginal product is rate of change in total product.

15. D
As per definition, law of diminishing returns or variable proportions states that with the increase in variable factor with the fixed factors, marginal product and average initially rises but eventually diminishes.

16. B
As per definition, marginal physical product is contributing to output of a firm by and additional unit of labour (factor of production).

17. D
According to law of diminishing returns, as variable factor is increased when combined with a fixed factor, first the marginal product increases but it eventually decrease. Therefore the total output first increases with increasing rate but later on increases with decreasing rate as MP is the rate of change in total output.

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18. C

As per definition, short run is a time period in which a firm is unable to change all factors of production and at least one factor is fixed. In short run, usually labour is a variable factor and capital and land are fixed factors. The time until a firm takes to vary the fixed factor is the short run period of a firm.

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2.2 Long run production function (Least cost inputs mix)

1. M/J 15/P32/Q7
What relationship does a firm's long-run production function describe?

A the firm's output and the quantities of factor inputs employed
B the firm's long-run average cost of production and the level of output
C the firm's long-run average cost of production and the quantities of factor inputs employed
D the prices of factor inputs and the quantities of factor inputs employed

2. M/J 11/P32/Q5
What is the name for the relationship between a firm's output and the quantities of factor inputs that it employs?

A a long-run average cost function
B a long-run production function
C productive efficiency
D returns to scale

3. O/N 04/P3/Q9
A firm's long-run production function describes the relationship between

A the firm's output and the quantities of factor inputs employed.
B the firm's long-run average cost of production and the level of output.
C the firm's long-run average cost of production and the quantities of factor inputs employed.
D the prices of factor inputs and the quantities of factor inputs employed.

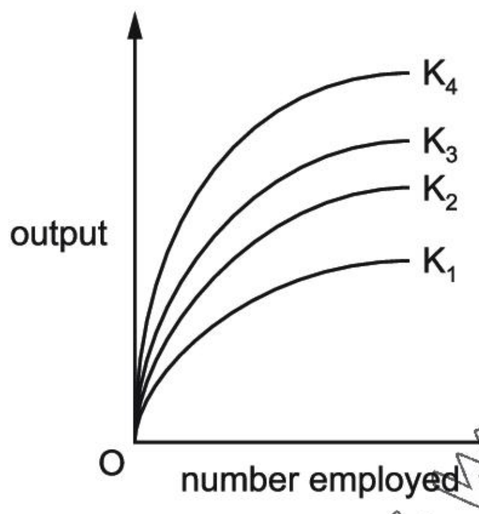
4. M/J 11/P31/Q6
What is the name for the relationship between a firm's output and the quantities of factor inputs that it employs?

A a long-run average cost function
B a long-run production function
C productive efficiency
D returns to scale

5. M/J 99/P3/Q9
A firm has two variable factors of production, capital (K) and labour (L), that it employs at fixed prices of P_k and P_L per unit respectively. AP_k , AP_L and MP_k , MP_L refer to the average and marginal products of capital and labour.
Which of the following represents the way in which the firm should utilize capital and labour in order to minimize the cost of producing a given output?

A $\frac{AP_K}{P_K} = \frac{AP_L}{P_L}$ **B** $\frac{MP_K}{MP_L} = \frac{AP_K}{AP_K}$ **C** $\frac{MP_K}{MP_L} = \frac{P_L}{P_K}$ **D** $\frac{MP_K}{P_K} = \frac{MP_L}{P_L}$

6. O/N 14/P14/Q8
The diagram shows the relationship between a firm's output and the number of workers employed at different levels of capital stock (K).



What does the diagram show?

A the firm's long-run production function
B the firm's long-run rate of return on capital
C the firm's long-run total cost function
D the firm's short-run rate of return on capital

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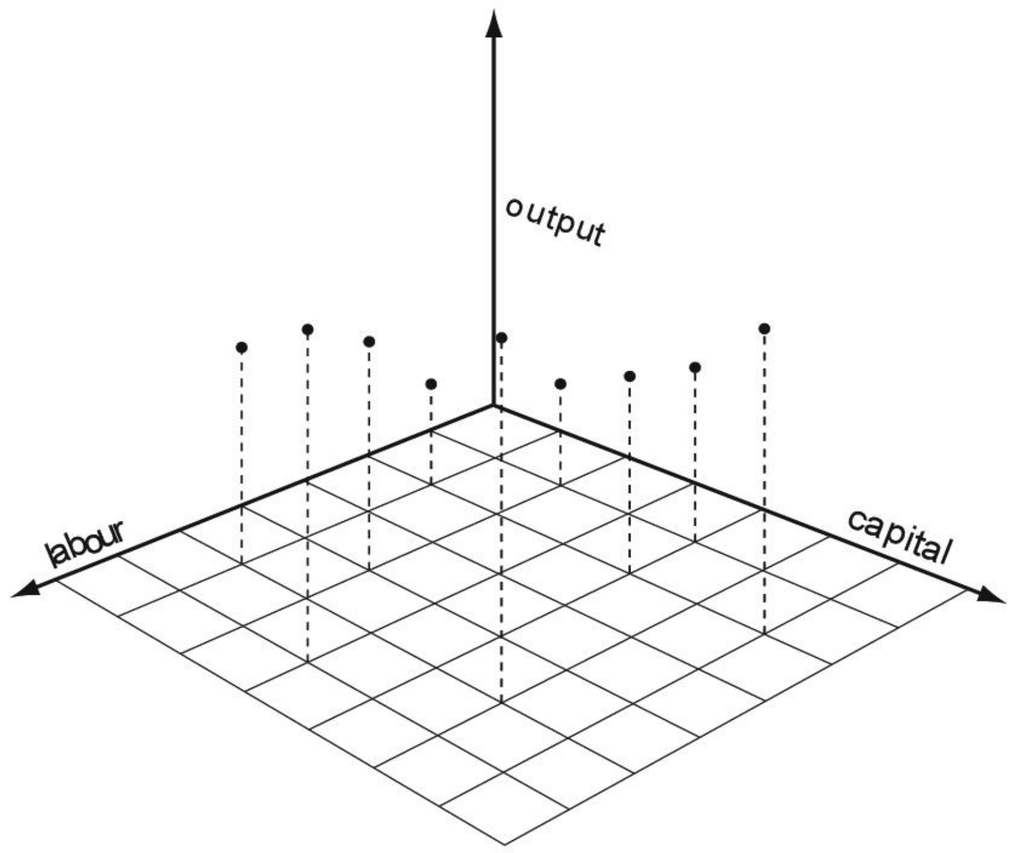
7. O/N 03/P3/Q8, O/N 13/P31/Q6

In the diagram the heights of the vertical broken lines show levels of output corresponding to different combinations of labour and capital.



What does the diagram show?

A a cost function
B a long-run production function
C an input function
D a production possibility function

8. O/N 12/P33/Q8

A firm employs three factors of production. The table shows the marginal products of these factors and their respective costs at the current level of output.

	land	labour	capital
marginal product (units)	4	2	9
marginal cost per unit of factor ($)	4	6	3

Which adjustment in factor use would be most likely to bring the firm nearer to the least-cost combination of inputs for its current output level?

	land	labour	capital
A	no change	more	more
B	more	less	more
C	no change	more	no change
D	more	more	no change

9. M/J 04/P3/Q13

A firm employs three factors of production. The table shows the marginal products of these factors and their respective costs at the current level of output.

	land	labour	capital
Marginal product (units)	1	2	9
Marginal cost per unit of factor ($)	4	6	3

Which adjustment in factor use would be most likely to bring the firm nearer to the least-cost combination of inputs for its current output level?

	Land	Labour	capital
A	less	no change	more
B	less	no change	no change
C	more	Less	no change
D	more	Less	more

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10. M/J 12/P33/Q4

A firm employs two factors, X and Y, to produce a good which is sold for $4.
The table shows its factor productivities and factor prices.

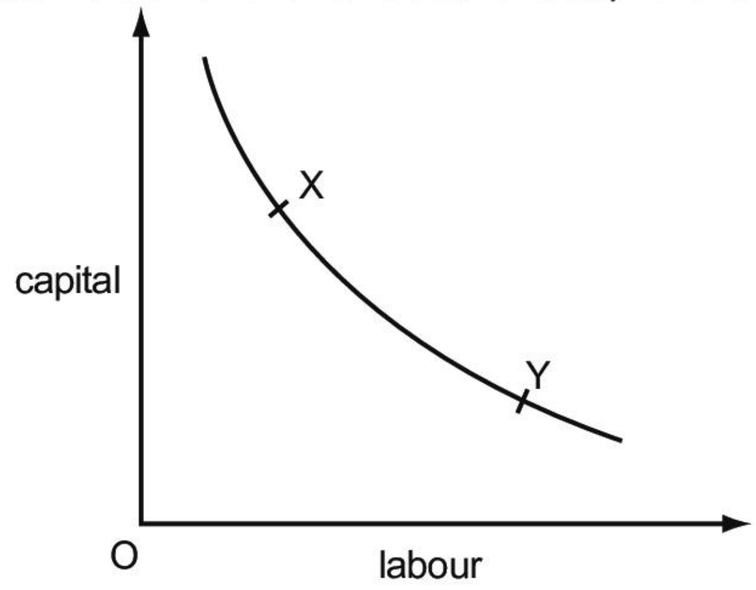
factor	marginal physical product	factor price ($)
X	3	15
Y	5	12

What should the firm do?

A employ less of both X and Y
B employ more of X and less of Y
C employ more of Y and less of X
D employ more of both X and Y

11. O/N 10/P32/Q5

In the diagram, the curve shows the various combinations of labour and capital that can be employed to produce a given volume of output.
A firm initially chooses the combination of labour and capital shown by point **X** on the curve.
In a subsequent period the firm chooses the combination of labour and capital shown by point Y.

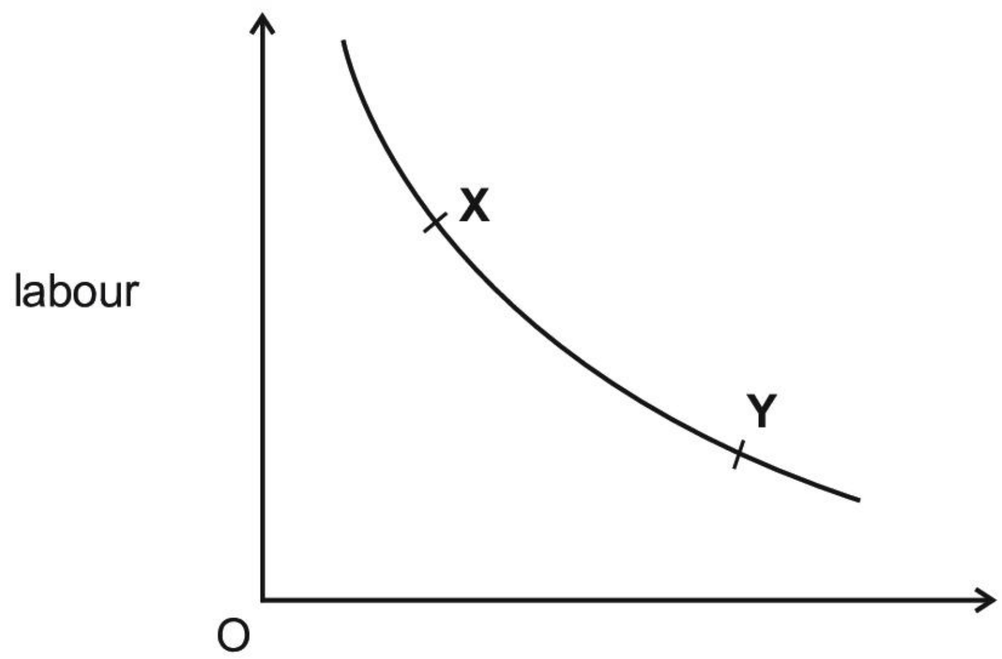


What could explain this change?

A a decrease in capital productivity
B an increase in interest rates
C an increase in labour productivity
D an increase in wage rates

12. M/J 02/P3/Q5

In the diagram, the curve shows the various combinations of labour and capital that can be employed to produce a given volume of output.
A firm initially chooses the combination of labour and capital shown by point **X** on the curve.
In a subsequent period the firm chooses the combination of labour and capital shown by point **Y**.



What could explain this change?

A a decrease in capital productivity
B an increase in labour productivity
C an increase in the cost of labour
D an increase in the cost of capital

13. M/J 03/P3/Q4

A given production process uses both labour and capital.
What will be the effect on the quantities of labour and capital employed if the government introduces a subsidy on capital investment?

	quantity of labour	quantity of capital
A	decrease	uncertain
B	uncertain	uncertain
C	decrease	increase
D	uncertain	increase

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Answers Section

1. A
As per definition a long run production function is a relationship between the firm's output and quantities of factor inputs employed all of which can be varied in the long run, i.e.,

$$Q = f(L, K, N)$$

2. B
The relationship between a firm's output and the quantities of factor inputs that it employs is known as the firm's long-run production function.

3. A
As per definition a long run production function is a relationship between the firm's output and quantities of factor inputs employed all of which can be varied in the long run, i.e.,

$$Q = f(L, K, N)$$

4. B
According to the definition, the relationship between all inputs (i.e., land, labour, and capital) and output is known as the long-run production function, and it is assumed that all inputs are variable.

$$Q = f(L, N, K, Tech)$$

Where L = Labour; N = Land; K = Capital; and, Tech = Technology

5. D
In long run production, cost minimization is achieved at a point where last $ spent on each factor of production generates same MP to the firm, i.e.,

$$\frac{MP_K}{P_K} = \frac{MP_L}{P_L}$$

6. A
When more than one factors of production are taken as variable, that time period is taken as long run. When a relation between more than one factor of production and output is established, this shows a long run production function.

7. B
When more than one factors of production are taken as variable, that time period is taken as long run. When a relation between more than one factor of production and output is established, this shows a long run production function.

8. B
In the long run all factors of production are variable. Therefore, in the long run, a firm can choose that factor input mix (i.e., combinations of land, labour, and capital) which is most efficient (i.e., incurs the least cost). A firm will increase a factor of production whose marginal product to price ratio is greater and reduces the quantity of factor of production whose marginal product to price ratio is lower. The right combination of land, labour, and capital can be found by equating the ratios of the MP of each factor to its respective price.

	Land	**Labour**	**Capital**
MP	4	2	9
Marginal cost/price	4	6	3
$\frac{MP}{P}$	$\frac{1}{1} = 1$	$\frac{2}{6} = \frac{1}{3}$	$\frac{9}{3} = 3$
Firm's behaviour	more	less	more

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9. A

In the long run all factors of production are variable. Therefore, in the long run, a firm can choose that factor input mix (i.e., combinations of land, labour, and capital) which is most efficient (i.e., incurs the least cost). A firm will increase a factor of production whose marginal product to price ratio is greater and reduces the quantity of factor of production whose marginal product to price ratio is lower. The right combination of land, labour, and capital can be found by equating the ratios of the MP of each factor to its respective price.

	Land	**Labour**	**Capital**
MP	1	2	9
Marginal cost/price	4	6	3
$\frac{MP}{P}$	$\frac{1}{4}$	$\frac{2}{6} = \frac{1}{3}$	$\frac{9}{3} = 3$
Firm's behaviour	less	no change/more	more

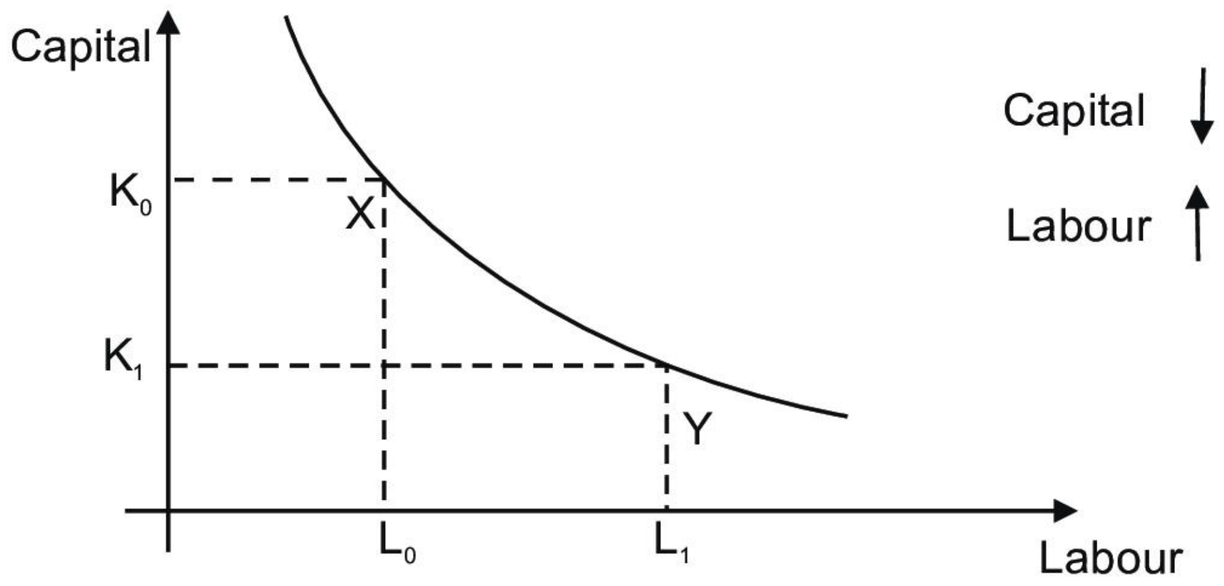
10. C

In the long run all factors of production are variable. Therefore, in the long run, a firm can choose that factor input mix (i.e., combinations of land, labour, and capital) which is most efficient (i.e., incurs the least cost). A firm will increase a factor of production whose marginal product to price ratio is greater and reduces the quantity of factor of production whose marginal product to price ratio is lower. The right combination of land, labour, and capital can be found by equating the ratios of the MP of each factor to its respective price.

factor	**marginal physical product**	**factor price ($)**	$\frac{MP}{P}$	**firm's behaviour**
X	3	15	$\frac{3}{15} = 0.20$	less
Y	5	12	$\frac{5}{12} = 0.42$	more

11. B

The diagram is shown below



As shown through diagram the firm has changed its preferences to employ greater labour resources and lesser capital resources this can happen due to decrease in capital productivity and/or an increase in labour productivity or the cost of labour has decreased in comparison to cost of capital. As volume of output is given, only option left is fall in relative cost of labour in comparison to cost of capital.

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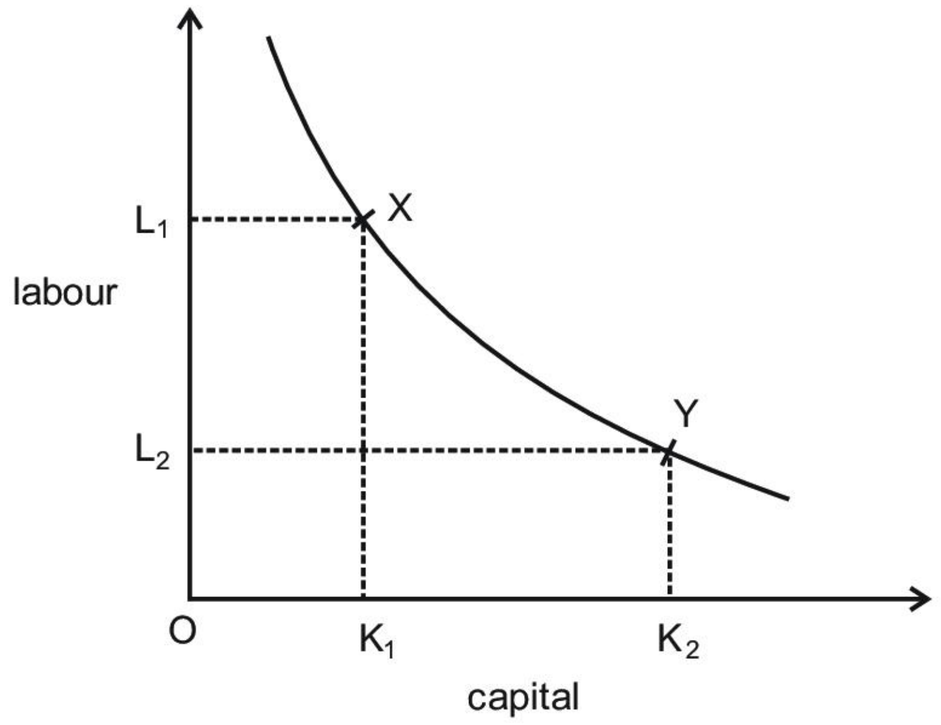
12. C

The diagram is shown below.



As shown through diagram, the firm has changed its preference to employ greater capital resources and lesser labour resources. This will happen either because labour productivity has decreased coupled with an increase in capital productivity or the cost of capital has decreased in comparison to the cost of labour. As volume of output is **given**, only option left is fall in cost of capital relatively.

13. D

A subsidy on capital investment would mean lower cost of capital. This will encourage the firm to employ more of capital resources due to lower costs. However, the answer to employment of labour resources is uncertain. Will greater employment of capital affect labour productivity? Is capital substitutes labour or more capital needs more labour employed to operate it? Unless these questions are answer the effect of employment of labour is uncertain.

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2.3 Accounting cost and economic cost

1. M/J 13/P32/Q7

An economist calculates that a firm has incurred the following costs over the course of the year.

	$(000)
wages and salaries	150
opportunity cost of owner's time	40
materials	80
rent of buildings	30
marketing fees	20
interest on bank loans	25
interest forgone on finance provided by owner	15
depreciation of equipment	20

By how much would the economist's calculation of the total cost incurred by the firm exceed an accountant's calculation of the firm's total cost?

A $15 000 **B** $40 000 **C** $55 000 **D** $75 000

2. O/N 13/P33/Q7

An economist calculates that a firm has incurred the following costs over the course of a year.

	$(000)
wages and salaries	150
opportunity cost of owner's time	40
materials	100
rent of building	30
marketing fees	20
interest on bank loans	25
interest forgone on finance provided by owner	30
depreciation of equipment	35

What would an accountant calculate to be the total cost incurred by the firm?

A $360 000 **B** $390 000 **C** $400 000 **D** $430 000

3. O/N 12/P32/Q8

An economist calculates that an owner-managed firm has incurred the following costs over the course of a year.

	$(000)
wages of two employees	150
fee paid to wife for secretarial services	20
opportunity cost of owner's time	30
materials	80
rent	30
marketing fees	20
interest on bank loans	25
interest forgone on finance provided by owner	15

By how much does total cost as defined by an economist exceed the total cost as defined by an accountant?

A $15 000 **B** $30 000 **C** $45 000 **D** $65 000

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4. M/J 12/P32/Q8

An economist calculates that a firm has incurred the following costs over the course of a year.

	$(000)
wages and salaries	150
opportunity cost of owner's time	35
materials	80
rent	30
marketing fees	20
interest on bank loans	25
interest forgone on finance provided by owner	10

By how much does total cost as defined by an economist exceed the total cost as defined by an accountant?

A $75 000 **B** $45 000 **C** $35 000 **D** $10 000

5. M/J 03/P3/Q8

An economist calculates that a firm has incurred the following costs over the course of a year.
What would an accountant calculate to be the total cost incurred by the firm?

	$(000)
wages and salaries	150
opportunity cost of owner's time	40
materials	80
rent	30
marketing fees	20
interest on bank loans	25
interest forgone on finance provided by owner	15
depreciation	20

A $275 000 **B** $305 000 **C** $325 000 **D** $340 000

6. M/J 07/P3/Q10

The table shows data for an owner-managed firm for a particular year.

	$
total revenue	250 000
raw material costs	30 000
wages and salaries	110 000
salary that the owner could have earned elsewhere	40 000
interest paid on bank loan	30 000
interest forgone on owner's capital	50 000

What is the firm's profit according to an economist?

A –$10 000
B $40 000
C $80 000
D $100 000

7. M/J 06/P3/Q7

What is included in an economist's definition of costs but **not** an accountant's?

A advertising expenditure
B depreciation
C insurance
D normal profit

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8. O/N 03/P3/Q9

An entrepreneur takes out a $500 000 loan at a rate of interest of 10 %, and invests a further $500 000 of his own funds to set up a new firm.
In the first year he pays himself a salary of $40 000.
The rate of interest he could have obtained by investing his funds elsewhere is 8%, and the wage he could have earned in alternative employment is $30 000.
By how much will an economist's calculation of the firm's first year costs exceed an accountant's calculation?

A $20 000 **B** $30 000 **C** $40 000 **D** $50 000

9. O/N 02,O/N 05/P3/Q10

Which of the following items would **not** appear in a firm's financial accounts but would be included in an economist's calculation of the cost incurred by the firm?

A interest on bank loans used to purchase assets that have no alternative uses

B interest forgone on finance provided by the firm's owner

C depreciation

D rent

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Answers Section

1. C
The difference between an accountant and an economist's cost calculations is that economists include opportunity cost of undertaking the business activity. So one is the opportunity cost of the owner's time which is $40,000. Another is $15,000 interest forgone which is the opportunity cost of investing the money in the business rather than depositing it in a bank account to earn interest. So total difference amounts to (40,000+15,000)= $55,000.

2. A
The difference between an accountant and an economist's cost calculations is that economists include opportunity cost of undertaking the business activity. So one is the opportunity cost of the owner's time which is $40,000. Another is $30,000 interest forgone which is the opportunity cost of investing the money in the business rather than depositing it in a bank account to earn interest. So total accounting cost is sum of all other components excluding above two which is:
150,000+100,000+30,000+20,000+25,000+35,000=$360,000

3. C
The difference between an accountant's and economist's cost calculations is that an economist includes opportunity cost as part of total cost. So here opportunity cost of owner's time and interest forgone on finance provided by owner are two examples of opportunity cost. So the economist's total cost exceeds accounting cost by (30000+15000) = $45000.

4. B
The difference between an accountant and an economist's cost calculations is that economists include opportunity cost of undertaking the business activity. So one is the opportunity cost of the owner's time which is $35,000. Another is $10,000 interest forgone which is the opportunity cost of investing the money in the business rather than depositing it in a bank account to earn interest. So total difference amounts to (35,000+10,000)= $45,000.

5. C
An accountant cost does not include opportunity cost. Among all costs the interest forgone on finance provided by owner ($15,000) and opportunity cost of owner's time (40,000) would not be included in accountant's calculations. Therefore the total cost for accountant would be:
150,000+80,000+30,000+20,000+25,000+20,000=$325,000

6. A
An economist would include all costs including opportunity cost.
Therefore
Profit = TR - TC
= 250,000 - (30,000+110,000+40,000+30,000+50,000) = 250,000-260,00= -$10,000

7. D
Opportunity cost is the only cost which is included as an extra cost in economist's book of costs as compared to that of an accountant. Among the options, only normal profit is that option which would be included in economist's definition of costs but not an accountant's because normal profit is equal to opportunity cost.

8. B
An economist's calculation of the firm's first year exceeds an accountant's cost by the opportunity cost only. Therefore the opportunity cost needs to be calculated as follows.
Wages earned in alternative employment = $ 30,000

Rate of interest earned elsewhere $= \frac{8}{100} \times 500,000 = \$40,000$

Total amount could have been earned elsewhere = 40,000 + 30,000 = 70,000
Opportunity cost = Amount could have been earned - amount earned at current position
= 70,000 - 40,000 = $30,000

9. B
In economics, costs are classified into two types, i.e., accounting cost and economic cost. Between an accountant's and economist's classification of cost is that an economist accounts for not only all accounting expenses but also includes opportunity cost that is not included in accounting cost. Opportunity cost is the cost of the next best alternative sacrificed. Interest forgone on finance provided by the firm's owner is the only opportunity cost in this question.

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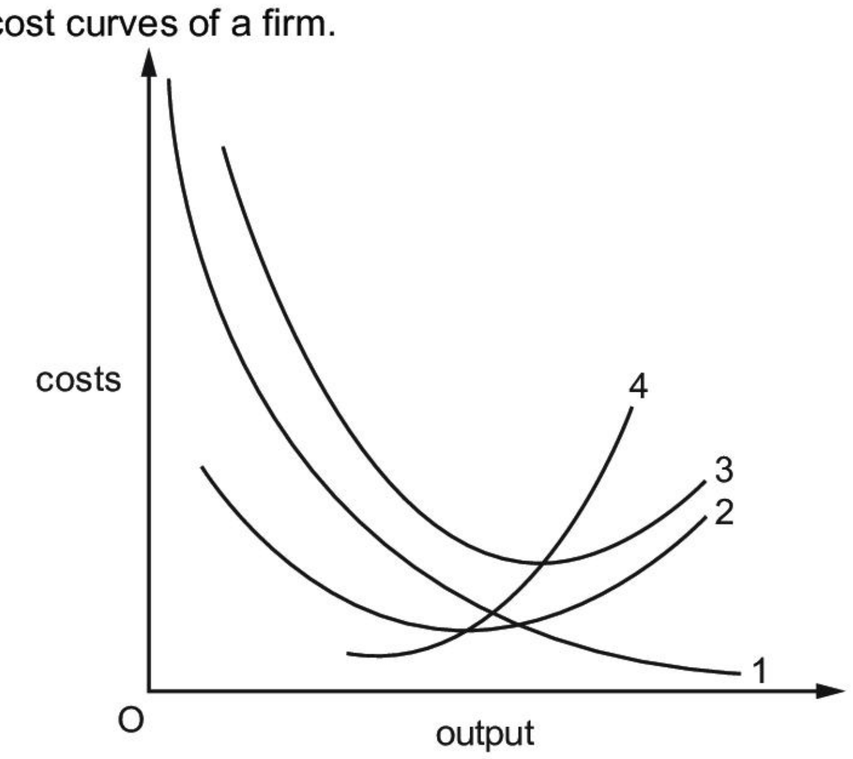
2.4 Short-run costs

1. M/J 14/P31/Q9

The diagram shows the short-run cost curves of a firm.



Which statement is correct?

A Curve 1 is the marginal cost curve.

B Curve 2 is the average variable cost curve.

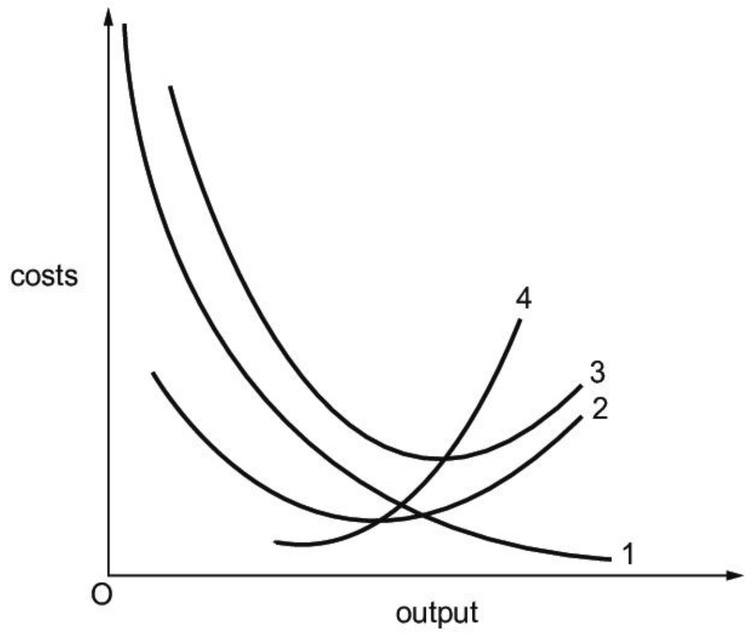
C Curve 3 is the average fixed cost curve.

D Curve 4 is the average total cost curve.

2. M/J 81,M/J 95,O/N 02/P3/Q7

The diagram shows the short-run curves of a firm.

Which statement is correct?



A Curve 1 is the average fixed cost curve.

B Curve 2 is the marginal cost curve.

C Curve 3 is the average variable cost curve.

D Curve 4 is the average total cost curve.

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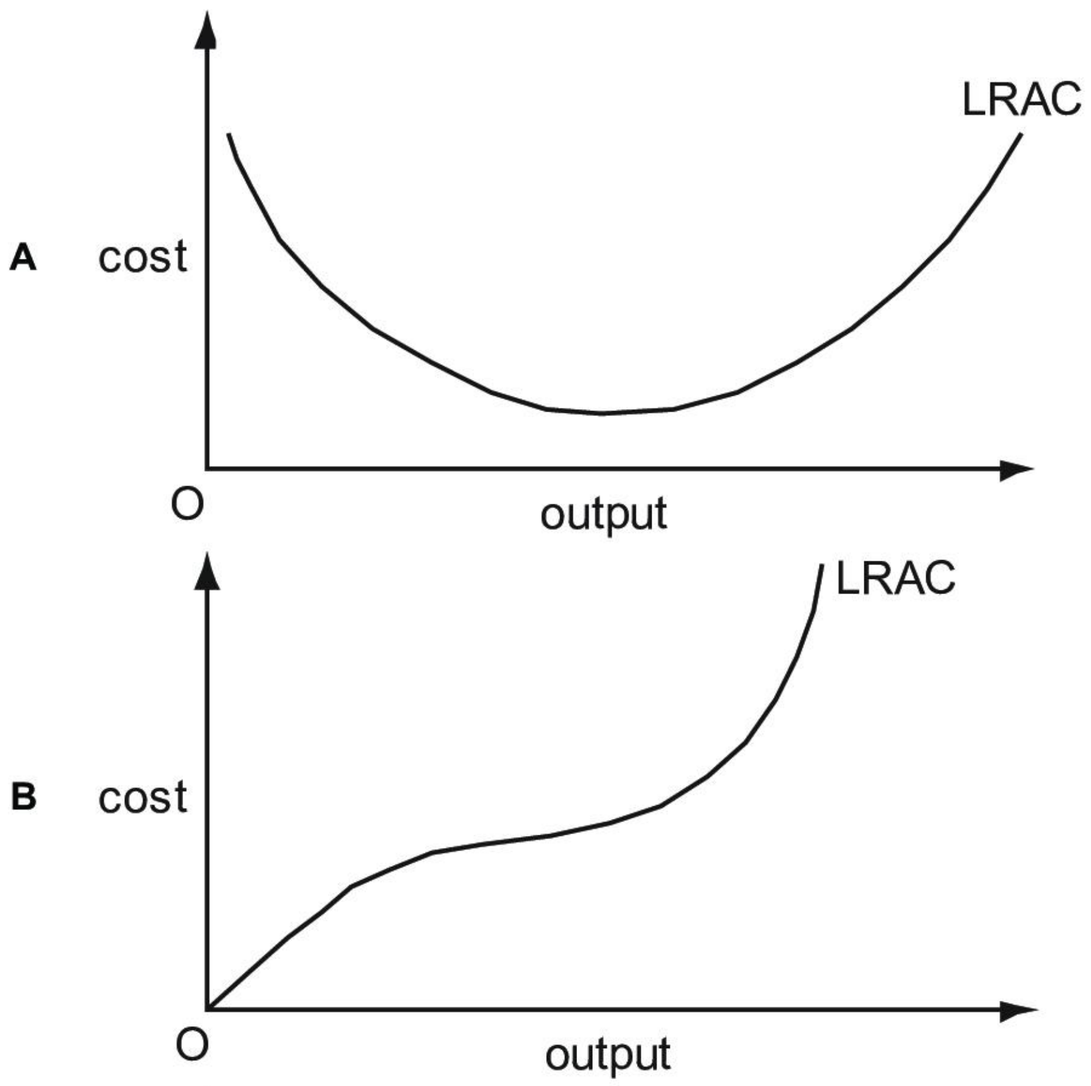
3. O/N 13/P32/Q7

The table shows a firm's long-run total cost schedule.

output of goods per month	total cost (US$)
100	100
200	120
300	150
400	200

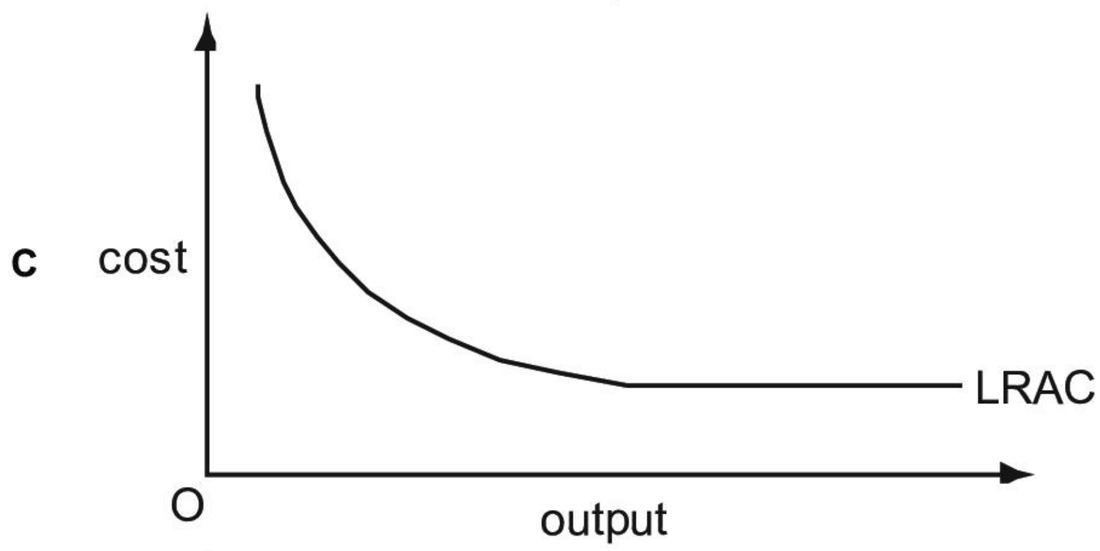
Which graph shows the shape of the firm's long-run average cost curve?

A

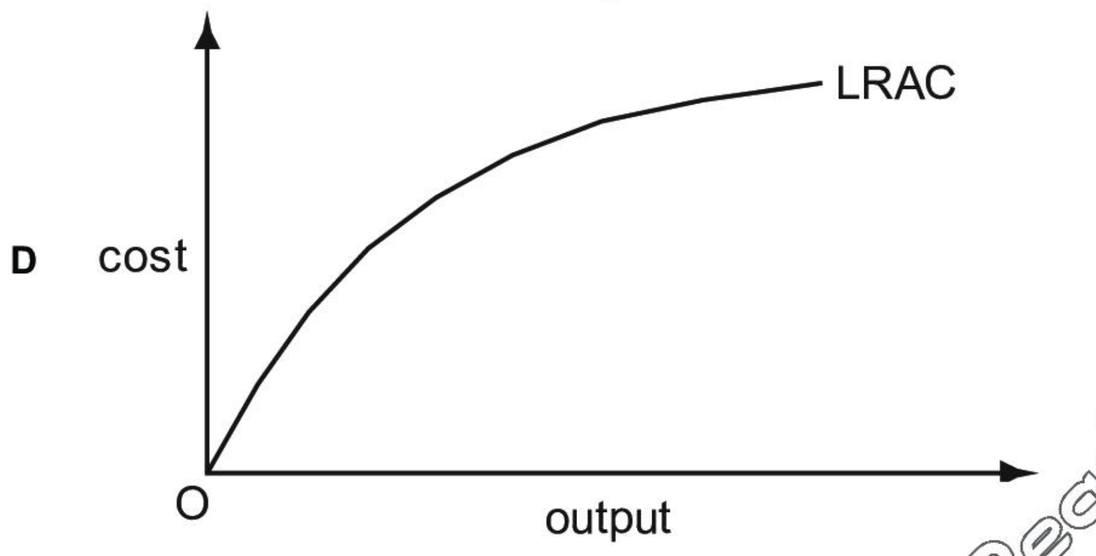


B

C



D



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4. O/N 04/P3/Q10

What is marginal cost?

A the difference between the total cost of producing **n** and **n-1** units of output

B the difference between the average variable cost of producing **n** units and **n-1** units of output

C the difference between the average total cost of producing **n** units and **n-1** units of output

D the average variable cost of producing one more unit

5. O/N 90/P3

Which of the following defines average variable cost?

A total cost divided by the quantity of the variable factor employed.

B total variable cost divided cost by the quantity of the variable factor employed.

C total variable cost divided by the output produced.

D average cost divided by the quantity of the variable factor employed.

6. O/N 96/P3

The average fixed costs of producing of a firm

A fall as output rises at first, but then rise.

B fall continuously as output rises.

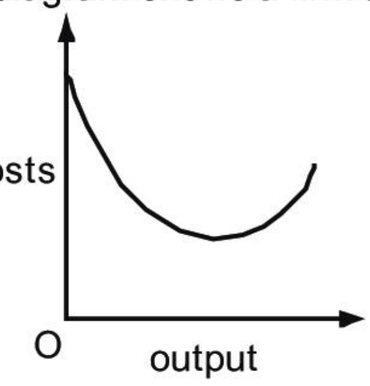
C increase continuously as output rises.

D remain unchanged at all output levels.

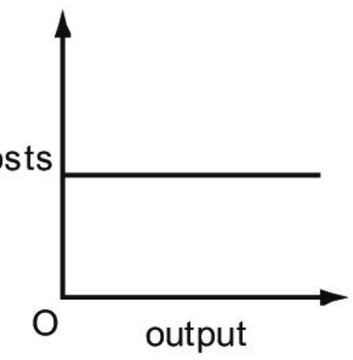
7. M/J 08/P3/Q7

Which diagram shows a firm's total fixed cost curve?

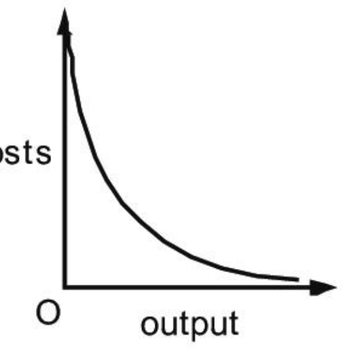
A



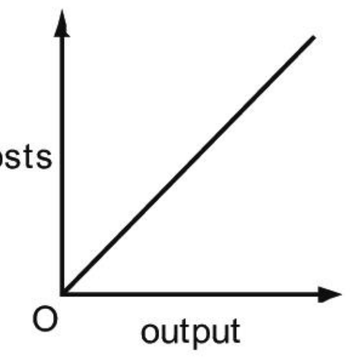
C



B



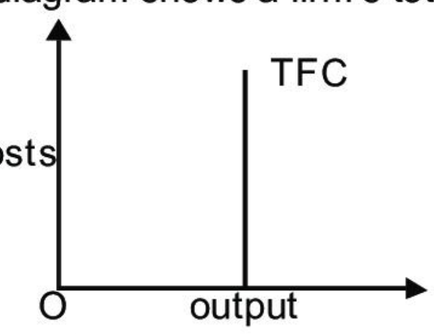
D



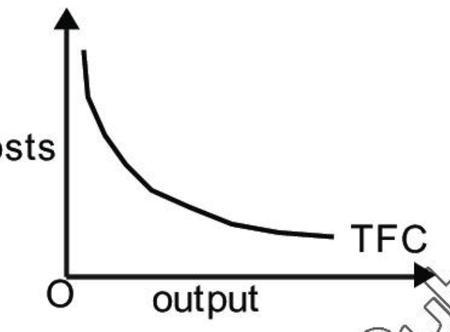
8. O/N 99/P3, M/J 97/P3

Which diagram shows a firm's total fixed cost curve?

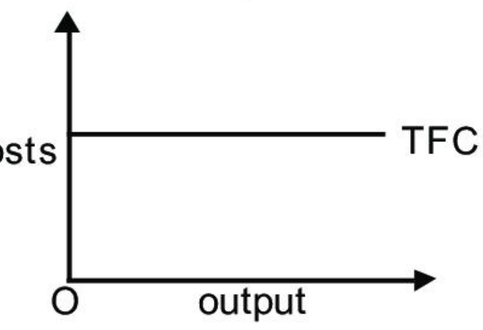
A



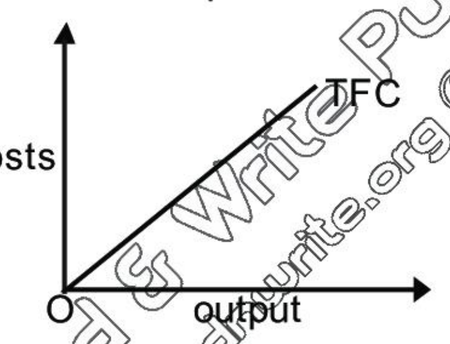
C



B



D



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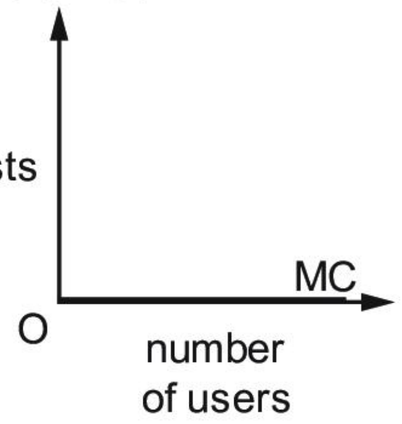
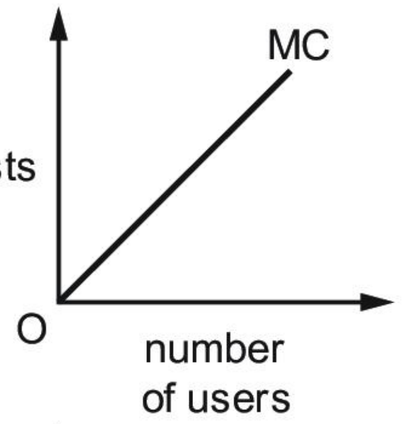
9. O/N 14/P31/Q9

Which diagram shows the short-run marginal cost (MC) of providing a service where the total costs of production in the short run are fixed?

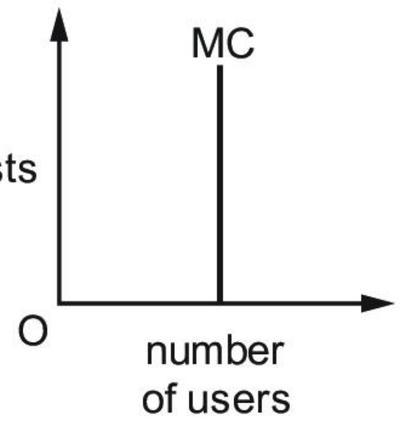
A



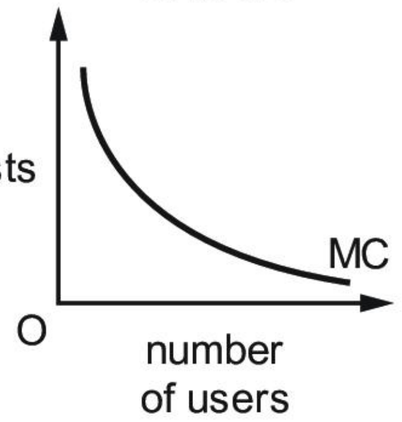
C



B



D



10. O/N 08/P3/Q8

The table shows the production of a firm.

production (tones)	total cost ($)
0	20
1	30
2	35
3	40
4	45
5	50

What is the average variable cost of producing 5 tonnes of output?

A $4.00 **B** $5.00 **C** $6.00 **D** $10.00

11. M/J 15/P3/Q8

The table shows a firm's total and marginal costs.

output	total cost ($)	marginal cost ($)
1	340	40
2	375	35
3	400	25
4	435	35
5	475	40

What is the average fixed cost of producing 6 units?

A $50 **B** $60 **C** $180 **D** $300

12. O/N 07/P3/Q7

The table `shows a firm's total and marginal costs.

output	total cost ($)	marginal cost ($)
1	200	20
2	215	15
3	225	10
4	240	15
5	260	20

What is the average fixed cost of producing 6 units?

A $20 **B** $30 **C** $180 **D** $200

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13. M/J 14/P32/Q9

The table shows a firm's marginal costs.

output	marginal cost ($)
1	40
2	30
3	20
4	30
5	40

The average fixed cost of producing 5 units is $6.
What is the total cost of producing 5 units?

A $46 **B** $70 **C** $190 **D** $230

14. M/J 12/P32/Q7

The table shows a firm's total costs of production.

production (tonnes)	total cost ($)
0	40
1	60
2	70
3	80
4	90
5	100

What is the average variable cost of producing 5 tonnes of output?

A $8.00 **B** $10.00 **C** $12.00 **D** $20.00

15. O/N 11/P32/Q8, M/J 07/P3/Q9, M/J 91

The short-run total cost of a firm given by the formula SRTC = £(10 000 + $5X^2$), where X is the level of output.
What are the firm's average fixed costs?

A £10 000 **B** $\frac{£(10000+5X^2)}{X}$ **C** $\frac{10000}{X}$ **D** $\frac{£(5X^2-10000)}{X}$

16. Dec 85,Dec. 86,M/J 94/P3/Q9

The short-run total cost curve of a firm is given by SRTC = 1500 + $20Q^2$, where Q is the level of output.
What are the firm's fixed costs?

A $20\ Q^2 - 1500$ **B** 1500 **C** $20\ Q^2$ **D** $\frac{1500}{Q}$

17. O/N 15/P33/Q9

The following schedule gives information about a firm's costs.

total variable costs	$6400
average fixed costs	$20
average total costs	$100

What is the firm's output?

A 32 units **B** 50 units **C** 64 units **D** 80 units

18. M/J 82,M/J 93,M/J 01,O/N 06/P3/Q6

If a firm experiences an increase in its fixed costs, how will its average variable cost and its marginal cost be affected?

	average variable cost	marginal cost
A	rise	rise
B	rise	no change
C	no change	rise
D	no change	no change

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19. M/J 99/P3

Given that a particular firm's marginal cost is zero at each level of output, it follows that

A average fixed cost equals average variable costs.

B average total cost equals average fixed costs.

C average total cost equals average variable costs.

D average total cost is constant at each level of output.

20. M/J 91/P3

The average total cost of producing 100 computers is £7000.
If production is increased from 100 to 101 computers, the production of the additional computer reduces the average fixed costs by £20 and the average variable costs by £10.
What is the marginal cost of the additional computer?

A £10 **B** £30 **C** £3970 **D** £6970

21. M/J 90/P3

Which of the following statements must be true when a firm's average total costs and average variable cost are identical?

A The firm will shut down. **C** Total fixed costs are zero.

B The firm is in perfect competition. **D** Marginal costs are constant.

22. O/N 15/P31/Q7

The schedule shows the short-run marginal cost of producing good X.

units of X	1	2	3	4	5
marginal cost ($)	50	40	20	20	60

Given that the total fixed cost is $10, what level of output minimises average total cost?

A 2 units **B** 3 units **C** 4 units **D** 5 units

23. M/J 15/P33/Q7

The schedule shows the short-run marginal cost of producing good X.

units of X	1	2	3	4	5	6
marginal cost ($)	45	40	30	20	20	50

Given that the total fixed cost is $50, what level of output minimises average total cost?

A 2 units **B** 3 units **C** 4 units **D** 5 units

24. O/N 03/P3/Q10

The schedule shows the short-run marginal cost of producing good X.

units of X	1	2	3	4	5	6
marginal cost ($)	40	30	26	34	50	90

Given that the total fixed cost is $30 what is the level of output that minimizes average total cost?

A 2 units **B** 3 units **C** 4 units **D** 5 units

25. M/J 10/P32/Q6

The schedule shows the short-run marginal cost of producing good X.

units of X	**1**	**2**	**3**	**4**	**5**
marginal cost ($)	40	30	30	60	120

Given that the total fixed cost is $20, what level of output minimizes average total cost?

A 2 units **B** 3 units **C** 4 units **D** 5 units

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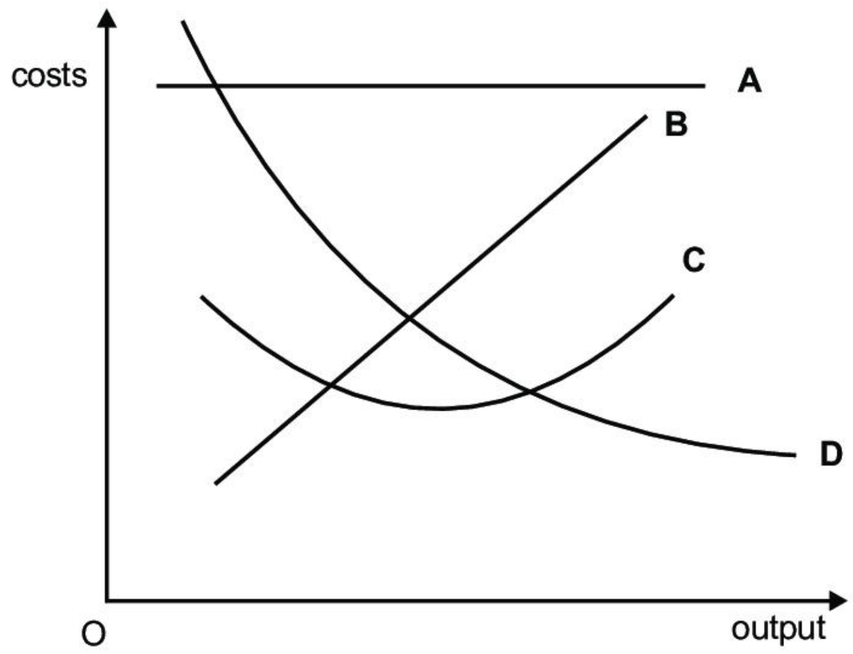
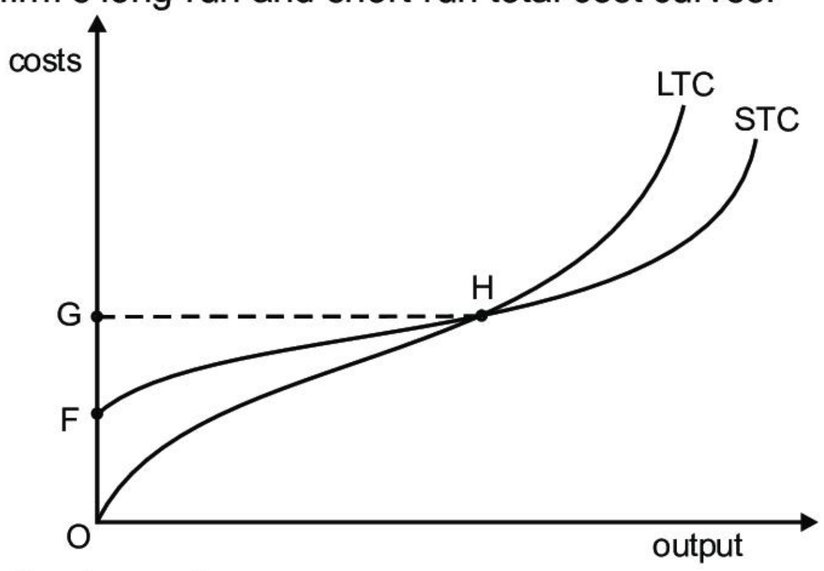
26. M/J 96/P3/Q10, M/J 15/P31/Q8

The average variable costs of a firm are constant over the relevant range of output.
Assuming that fixed costs are incurred, which curve on the diagram could be the firm's average total cost curve over this range?



27. O/N 90/P3

In the diagram, LTC and STC are a firm's long-run and short-run total cost curves.



Which distance measures the firm's fixed costs?

A OF **B** OG **C** OH **D** FG

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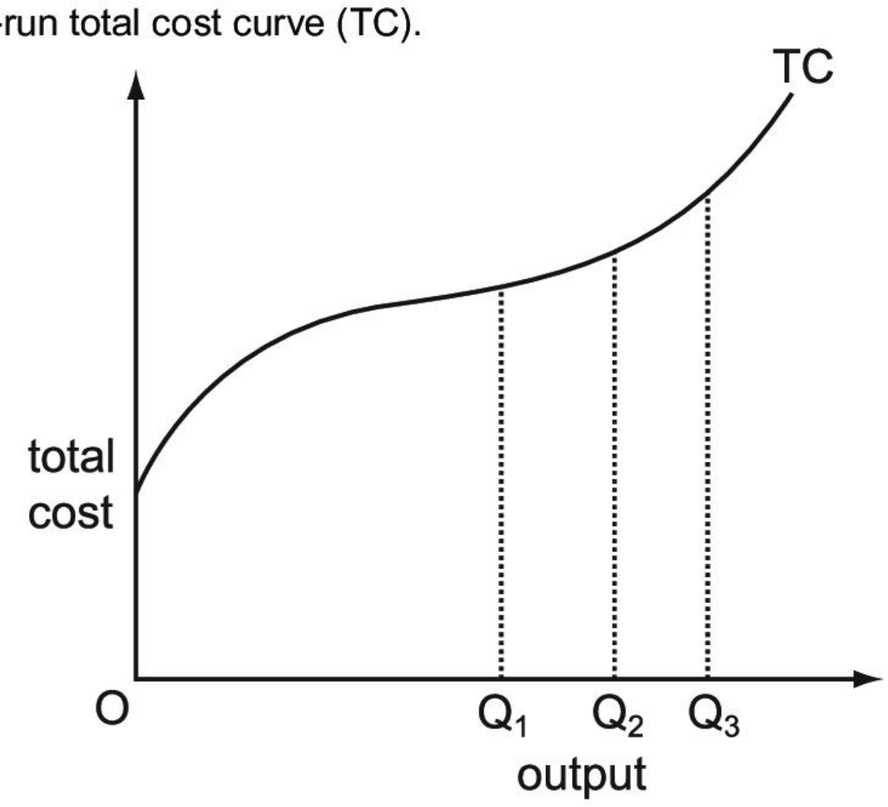
28. O/N 12/P33/Q7

The diagram shows a firm's short-run total cost curve (TC).

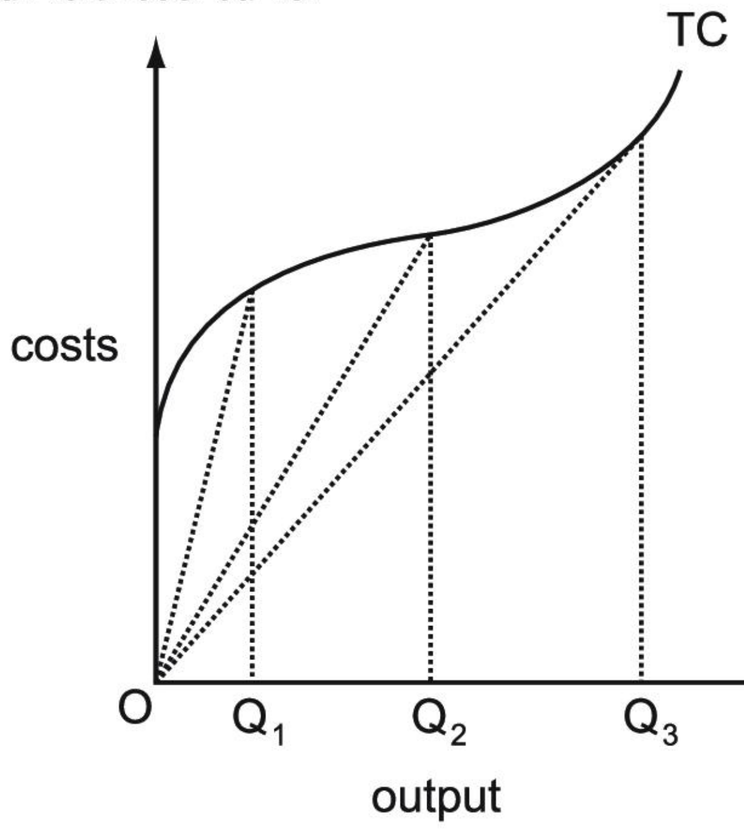


Which statement is correct?

A Average variable cost is minimised at output OQ_3.
B Marginal cost is minimised at output OQ_1.
C Average variable cost is minimised at output OQ_1.
D Average total cost is minimised at output OQ_2.

29. O/N 13/P31/Q7

In the diagram, TC is a firm's short-run total cost curve.



Which statement is correct?

A Average total cost is minimised at output OQ_2.
B Average variable cost is minimised at output OQ_1.
C Average variable cost is minimised at output OQ_3.
D Marginal cost is minimised at output OQ_2.

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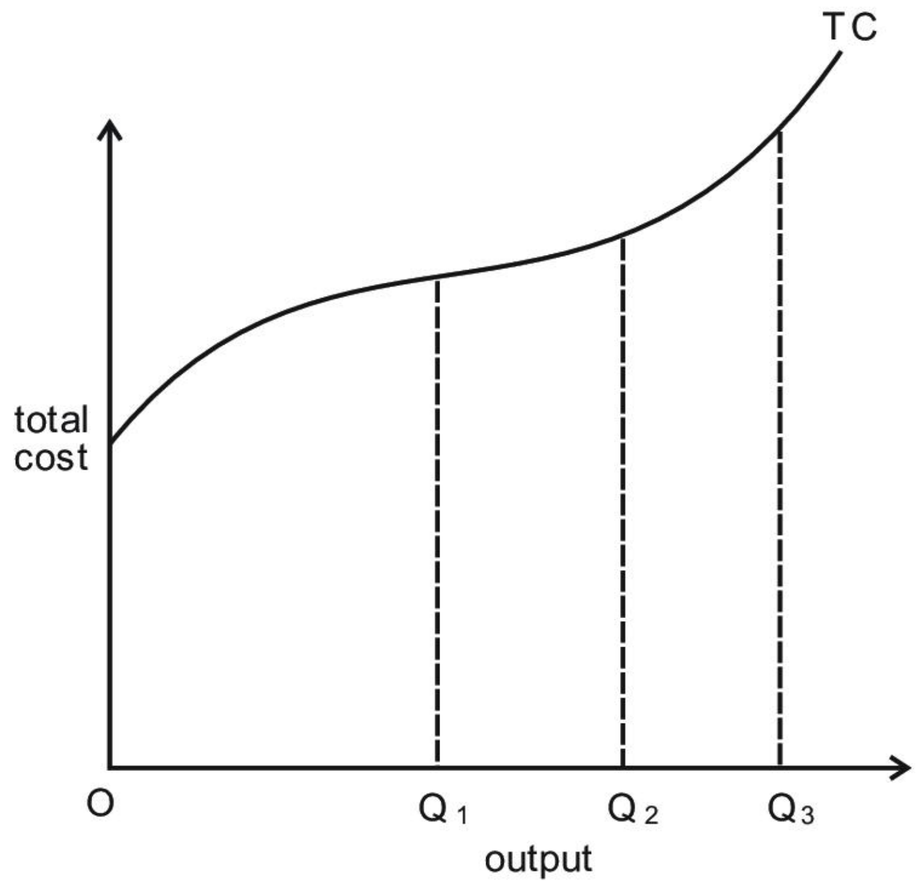
30. O/N 11/P31/Q7, O/N 11/P33/Q6

The diagram shows a firm's short-run total cost curve (TC).



Which statement is correct?

A Average total cost is minimised at output OQ_1.

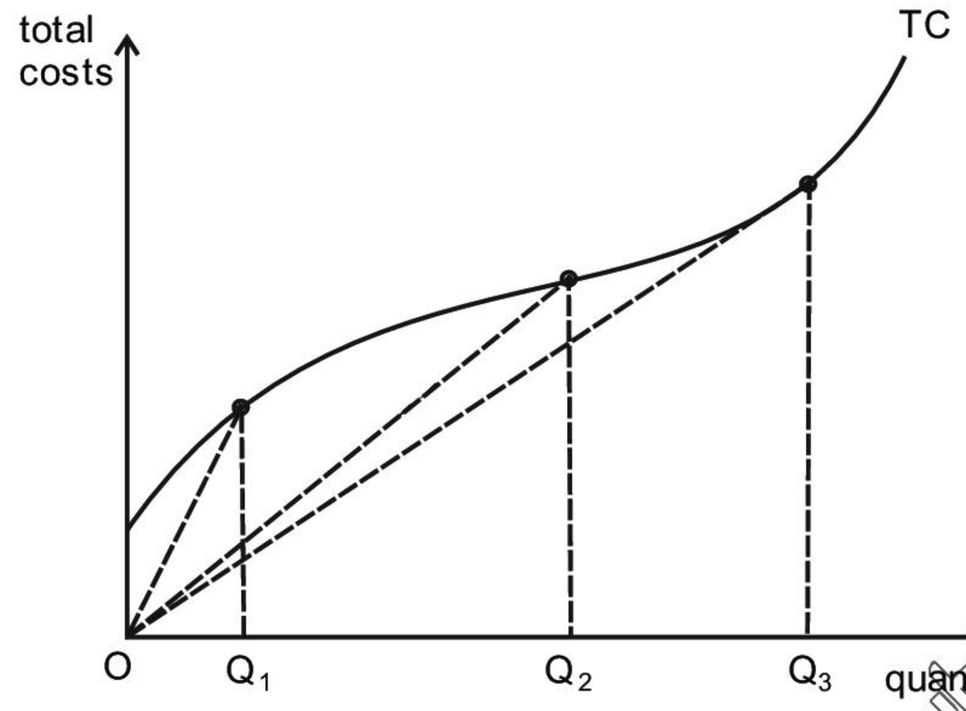
B Average variable cost is minimised at output OQ_2.

C Average variable cost is minimised at output OQ_3.

D Marginal cost is minimised at output OQ_2.

31. M/J 94/P3

The diagram shows a firm's short-run total cost curve (TC).



Which statement is correct?

A Average total cost is minimized at output OQ_2

B Average total cost is minimized at output OQ_3

C Average variable cost is minimized at output OQ_1

D Marginal cost is minimized at output OQ_3

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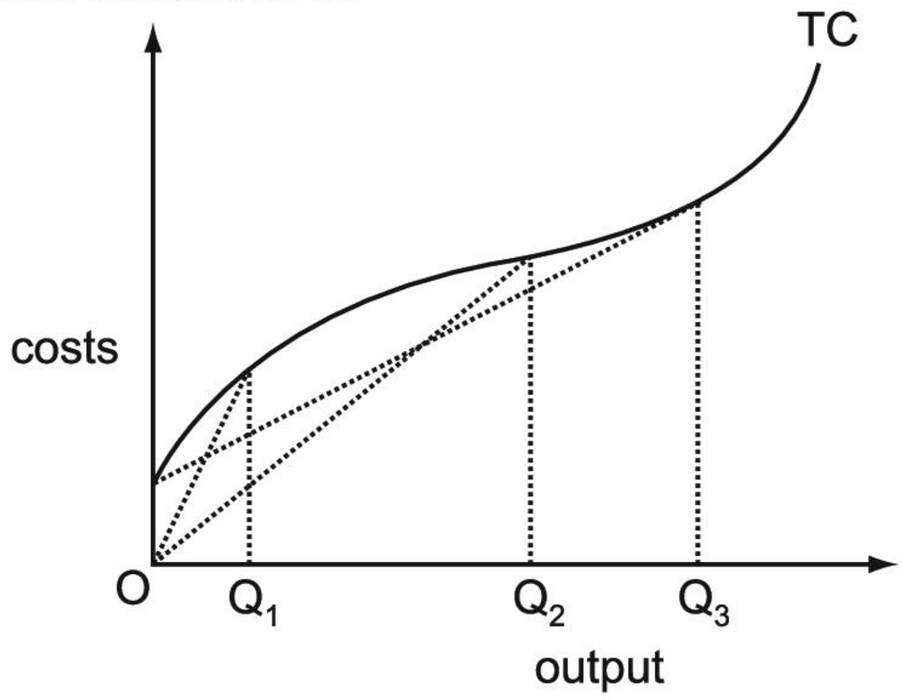
32. O/N 16/P32/Q9, O/N 13/P32/Q8

In the diagram, TC is a firm's short-run total cost curve.

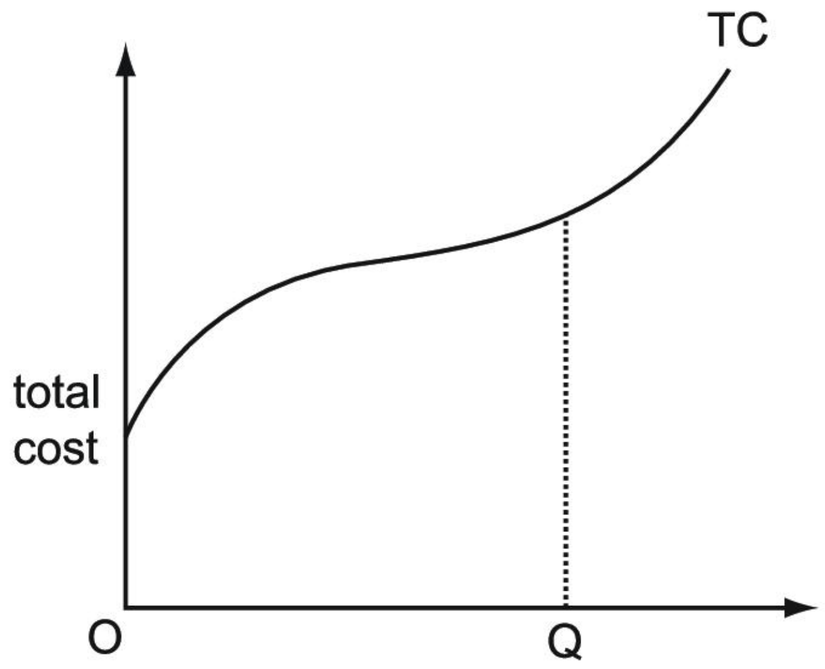


Which statement is correct?

A Average total cost is minimised at output OQ_2.
B Average variable cost is minimised at output OQ_1.
C Average variable cost is minimised at output OQ_3.
D Marginal cost is minimised at output OQ_1.

33. O/N 16/P31/Q9, M/J 12/P32/Q13

The diagram shows a firm's short-run total cost curve (TC).
What is minimised at output OQ?



A average fixed cost
B average total cost
C average variable cost
D marginal cost

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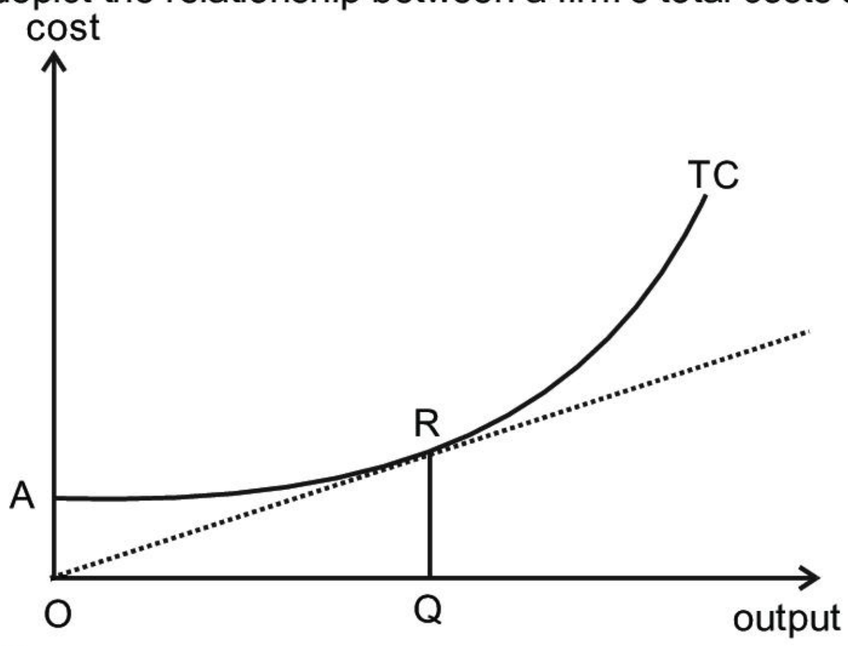
34. M/J 84,M/J 87,M/J 90,M/J 95/P3

In the diagram below the curve TC depict the relationship between a firm's total costs and its level of output.



At output OQ average fixed costs are

A maximized.

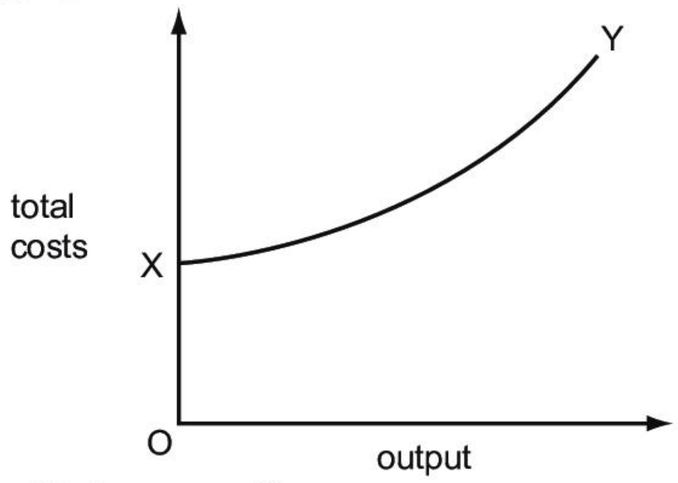
B minimized.

C measured by the slope of the line OR.

D equal to $\frac{OA}{OQ}$

35. M/J 05/P3/Q9

In the diagram, XY is a firm's total cost curve.



What happens to the firm's costs as output is increased?

	average fixed costs	**marginal costs**
A	decrease	constant
B	decrease	increase
C	constant	constant
D	constant	increase

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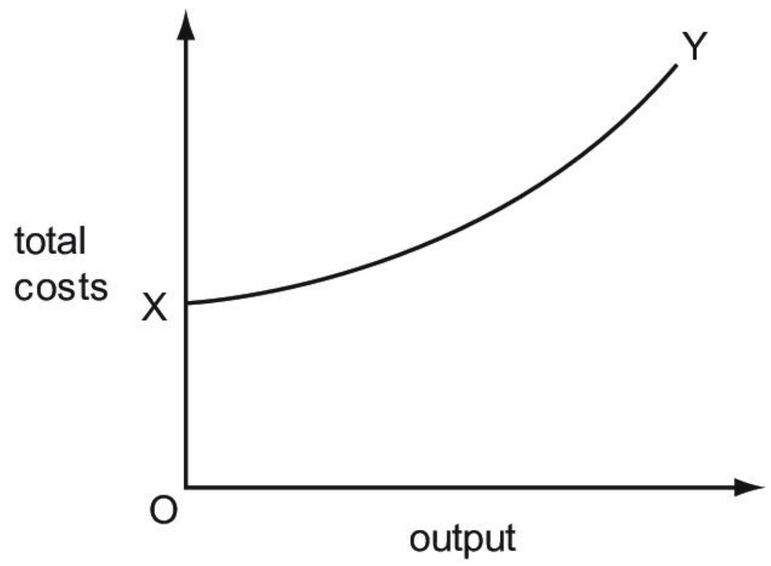
36. M/J 13/P31/Q7

In the diagram, XY is a firm's total cost curve.



What happens to the firm's costs as output is increased?

	average fixed costs	average variable costs
A	decrease	decrease
B	decrease	increase
C	constant	decrease
D	constant	increase

37. M/J 16/P33/Q9

A firm incurs both fixed and variable costs of production. It is currently producing at the level of output which minimises its average total cost.

What effect will a small reduction in output have on the firm's marginal and average variable costs?

	marginal cost	average variable cost
A	fall	fall
B	fall	rise
C	rise	fall
D	rise	rise

38. M/J 02/P3/Q11

A firm is producing at the level of output at which its average variable cost is equal to its marginal cost.

What will happen initially to its average variable cost and to its average total cost if it increases its output?

	average variable cost	average total cost
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

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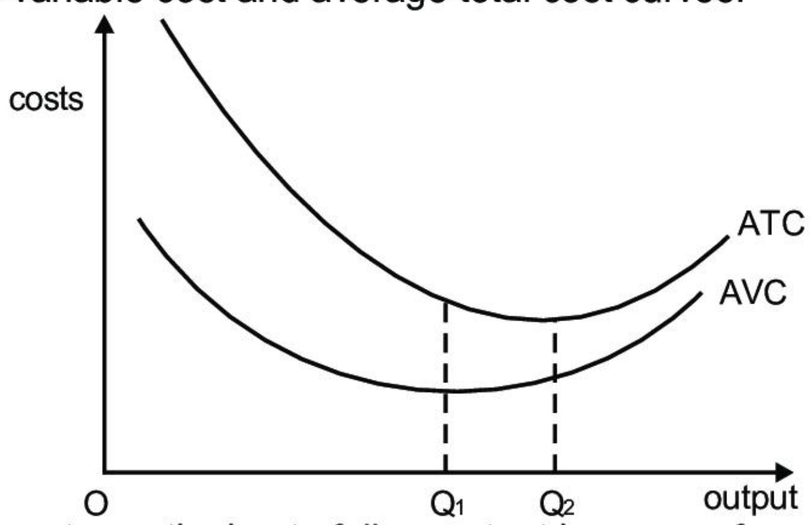
39. M/J 92/P3

In the short run, a firm is producing at its minimum average cost per unit of output.
What effect will a small reduction in output have on the firm's marginal , average and total cost?

	marginal cost	average cost	total cost
A	fall	fall	fall
B	fall	rise	fall
C	rise	fall	fall
D	rise	fall	rise

40. O/N 96/P3

The diagram shows a firm's average variable cost and average total cost curves.

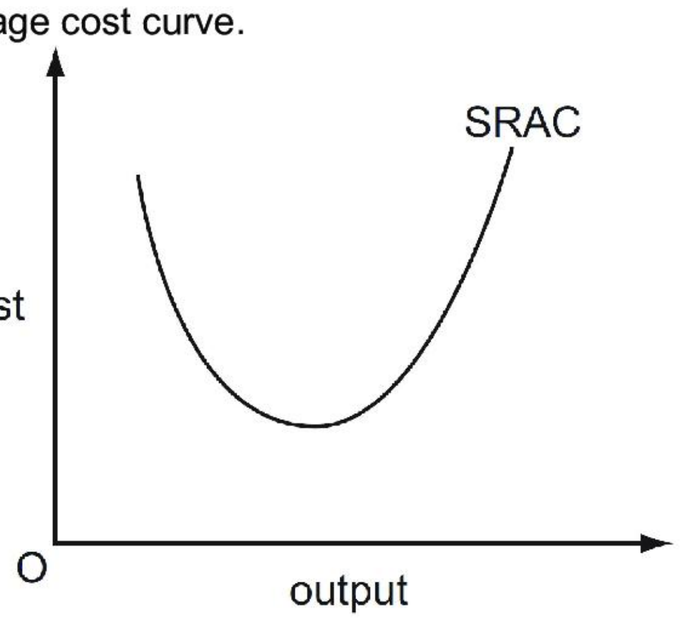


What is the reason for average total costs continuing to fall as output increases from OQ_1 to OQ_2?

A There are diminishing returns to the variable factors of production.
B There are diseconomies of scale.
C Marginal costs are falling over this range of output.
D Overheads are spread over a large volume of output.

41. O/N 15/P33/Q8

The diagram shows a firm's short-run average cost curve.



What explains the shape of the curve?

A the law of variable proportions
B the law of diminishing marginal utility
C fixed costs exceeding variable costs
D technical diseconomies

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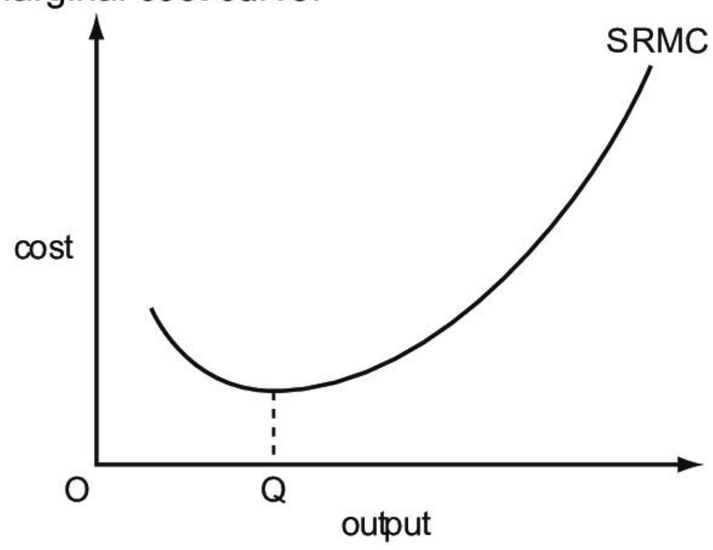
42. O/N 16/P33/Q7, O/N 10/P32/Q8

The diagram shows a firm's short-run marginal cost curve.

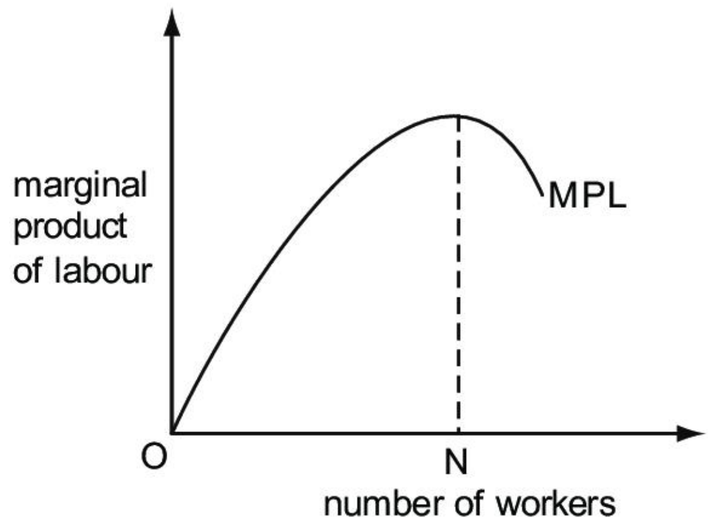


What explains why the curve is upward sloping at output levels above OQ?

A diseconomies of scale
B inelasticity of supply
C rising fixed costs
D the law of variable proportions

43. O/N 06/P3/Q3

The diagram shows the marginal product of labour curve (MPL) for a firm.
Labour is the only variable factor and the firm pays its workers the market wage.
At the level of employment ON, which statement is correct?



A The firm is maximising its output.
B The firm is minimising its total costs.
C The firm is minimising its wage bill.
D The firm is minimising its marginal cost of production.

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Answers Section

1. B
AFC falls sharply in the beginning but gradually its gradient slows down. (Curve 1).Marginal cost curve passes through the minimum of AVC and AC (Curve 4). Both AVC and AC are U shaped and have minimum point where MC intersects them but AVC is lower than AC hence curve 2 is AVC and curve 3 is AC.

2. A
AFC falls sharply in the beginning but gradually its gradient slows down. (Curve 1).Marginal cost curve passes through the minimum of AVC and AC (Curve 4). Both AVC and AC are U shaped and have minimum point where MC intersects them but AVC is lower than AC hence curve 2 is AVC and curve 3 is AC.

3. C

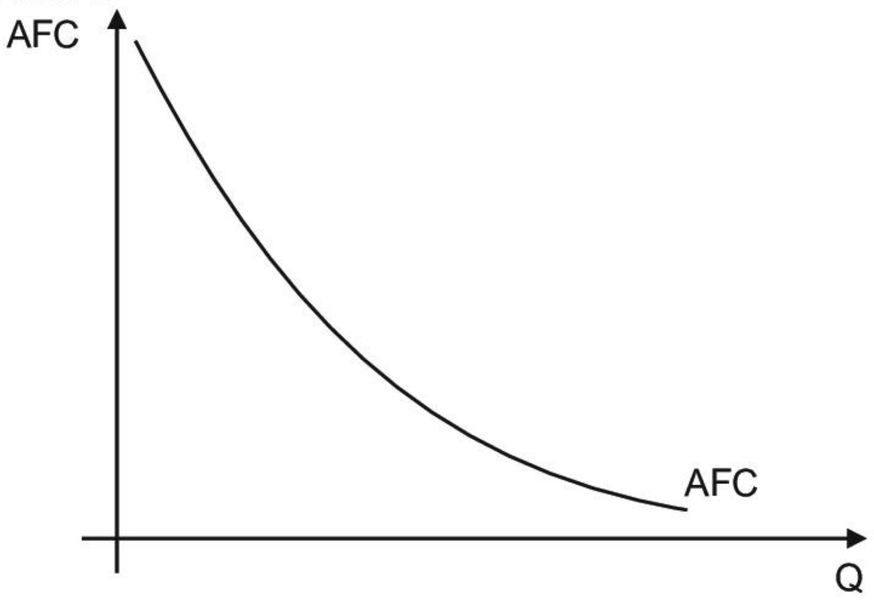
Output of goods per month	Total cost (US$)	Average cost=TC/Output (US$)
100	100	1.0
200	120	0.6
300	150	0.5
400	200	0.5

The table shows the average cost to be decreasing and then eventually becoming constant. Only graph that shows this behaiour of cost is an average cost curve.

4. A
Marginal cost is the change in total cost due to an extra unit of production. The difference in total cost is determined due to producing **n** and **n-1** units of output which means an extra unit of output.

5. C
As per definition, average variable cost is equal to total variable cost divided by total output produced.

6. B
AFC curve is shown in the diagram below.



As the curve shows, there is a continuous fall in AFC with the rise in output.

7. C
Total fixed cost does not vary with the level of output and therefore is horizontal.

8. B
Total fixed cost does not vary with the level of output and therefore is horizontal.

9. A
If
TC = FC then VC = 0 therefore MC = DVC = 0
Hence MC should be on x-axis.

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10. C

At zero output total cost is equal to fixed cost which is according to table $20. Total variable cost for 5 tonnes of output is the difference between total cost and fixed cost therefore.

VC = 50 - 20 = 30

$$AVC = \frac{VC}{Q} = \frac{30}{5} = 6$$

11. A

At first unit output total cost is $340 whereas the marginal cost is $40 which is the variable cost also. Therefore fixed cost is (340 - 40)= $300. At 6 units of output, average fixed cost will be as follows.

$$AFC = \frac{FC}{Q} = \frac{300}{6} = \$50$$

12. B

At first unit output total cost is $200 whereas the marginal cost is $20 which is the variable cost also. Therefore fixed cost is (200-20)= $180. At 6 units of output, average fixed cost will be as follows.

$$AFC = \frac{FC}{Q} = \frac{180}{6} = \$30$$

13. C

AFC= FC/Q

Rearranging the equation it can be said that

FC=AFC×Q=5×6=$30.

Sum of marginal cost = Variable Cost (VC) = 40+30+20+30+40=$160.

So

Total Cost=VC+FC = 160 + 30 = $190

14. C

Here since the second column is total cost, it should be noted that at zero output cost is $40, so fixed cost is $40. The variable cost of producing 4 tonnes is VC=TC - FC =90 - 40 = $50. Since average variable cost means (variable cost/output), AVC= 50/4= $12.

15. C

SRTC = 10,000 + $5x^2$ where x = output

As $5x^2$ will vary with the change in output and therefore is variable cost. Therefore the other part, i.e., 10,000 is fixed cost which is unaffected by change in level of output. Hence

$$AFC = \frac{FC}{Q} = \frac{10,000}{x}$$

16. B

Total cost includes a sum of fixed cost and variable cost. Fixed costs are those costs which do not vary with the level of output. From statement SRTC = 1500 + $20Q^2$.

As $20Q^2$ will vary with the change in level of output therefore it is variable cost. Therefore the other part, i.e., 1500 is fixed cost which is unaffected by change in level of output.

17. D

ATC = AFC + AVC

AVC = ATC - AFC =100 - 20 = $80

$$AVC = \frac{TVC}{Q} \Rightarrow Q = \frac{TVC}{AVC} = \frac{6400}{80} = 80$$

18. D

As per definition, fixed cost is the part of total cost which does not vary with the level of output. Variable cost is that part of cost which varies with level of output. As fixed cost is not related with the level of output therefore the increase in fixed cost will not affect the variable cost and hence the average variable cost as well. Similarly marginal cost is the change in total cost due to an extra unit of output. The increase in fixed costs cannot be attributed to a single extra unit of output. In fact, change in fixed cost does not relate to change in level of production. Moreover, mathematically:

$$\text{Marginal Cost} = \frac{\text{Change in Variable Cost}}{\text{Change in Quantity}} = \frac{\Delta VC}{\Delta Q}$$

Therefore, marginal cost does not change as well.

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19. B

If marginal cost is equal to zero, this means that additional cost for an additional unit is zero and that additional unit does not bear any average variable cost. The only cost this firm will bear is the average fixed cost and hence it would be average total cost.

If MC = 0 then VC = 0
If VC = 0 then AVC = 0
As AC = AFC + AVC With AVC = 0 AC = AFC

20. C

Marginal cost is the change in total cost due to an extra unit of output.

$Q_1 = 100$ $Q_2 = 101$
$AC_{100} = £7000$ $AC_{101} = 7000 – 20 – 10 = £6970$
$TC_{100} = AC_{100} \times Q_1 = 7000 \times 100 = £700,000$ $TC_{101} = AC_{101} \times Q_2 = 101 \times 6970 = £703970$

Therefore, according to statement

$MC = TC_{101} - TC_{100} = 703970 - 700,000 = £3970$

21. C

As AC = AFC + AVC
Therefore according to statement AC = AVC
Hence
AFC = 0 and FC = AFC × Q = 0

22. C

The marginal cost is change in total cost due to an extra unit of output. Sum of marginal cost is the variable cost. Now calculating total cost and dividing with output will give AC for every unit. Using table, at unit 4 the AC is minimised.

Q=Units of X	1	2	3	4	5
MC	50	40	20	20	60
VC=∑MC	50	50+40=90	90+20=110	110+20=130	130+60=190
FC	10	10	10	10	10
TC=FC+VC	60	100	120	140	200
AC=TC/Q	60	50	40	35	40

23. D

The marginal cost is change in total cost due to an extra unit of output. Sum of marginal cost is the variable cost. Now calculating total cost and dividing with output will give AC for every unit. Using table, at unit 4 the AC is minimised.

Q=Units of X	1	2	3	4	5	6
MC	45	40	30	20	20	50
VC=∑MC	45	45+40=85	85+30=115	115+20=135	135+20=155	155+50=205
FC	50	50	50	50	50	50
TC=FC+VC	95	135	165	185	205	255
AC=TC/Q	95	67.5	55	46.25	41	42.5

24. C

The marginal cost is change in total cost due to an extra unit of output. Sum of marginal cost is the variable cost. Now calculating total cost and dividing with output will give AC for every unit. Using table, at unit 4 the AC is minimised.

Q=Units of X	1	2	3	4	5	6
MC	40	30	26	34	50	90
VC=∑MC	40	40+30=70	70+26=96	96+34=130	130+50=180	180+90=270
FC	30	30	30	30	30	30
TC=FC+VC	70	100	126	160	210	300
AC=TC/Q	70	50	42	40	42	50

25. B

Units of X (Q)	**1**	**2**	**3**	**4**	**5**
MC	40	30	30	60	120
∑MC = VC	40	40+30=70	70+30=100	100+60=160	160+120=280
AVC= VC/Q	40/1=40	70/2=35	100/3=33.33	160/4=40	280/5=56
AFC= FC/Q	20/1=20	20/2=10	20/3=6.67	20/4=5	20/5=4
AC = AFC + AVC	60	45	40	45	60

Therefore AC is minimized at 3rd unit of x.

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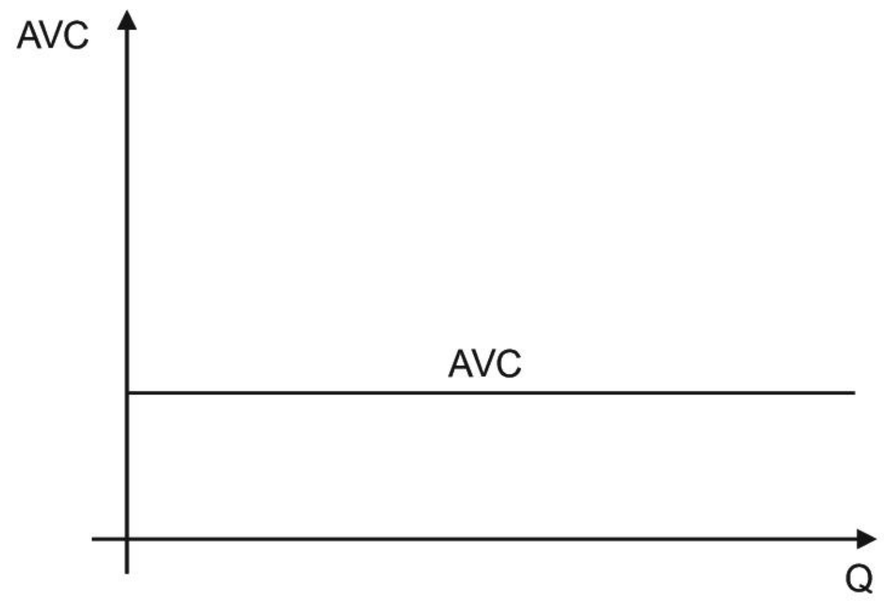
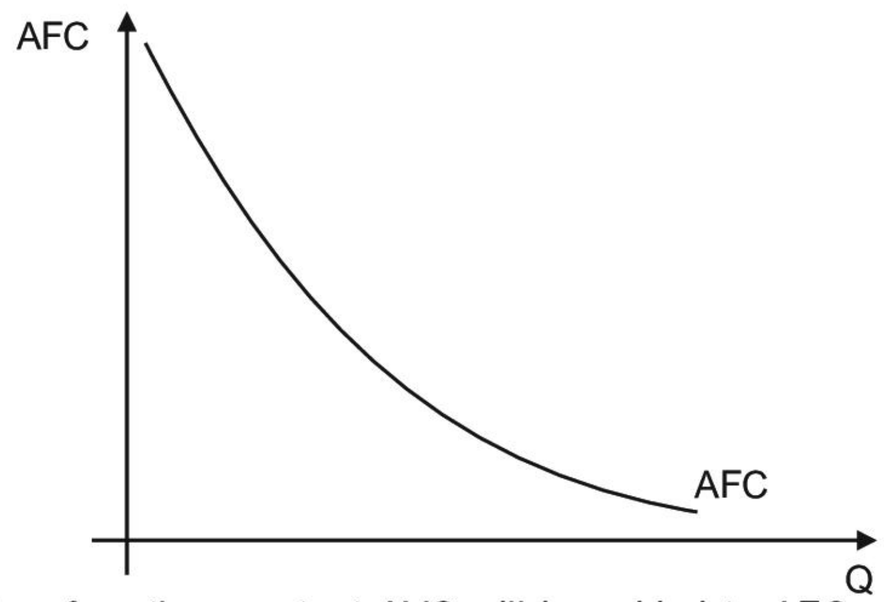
26. D

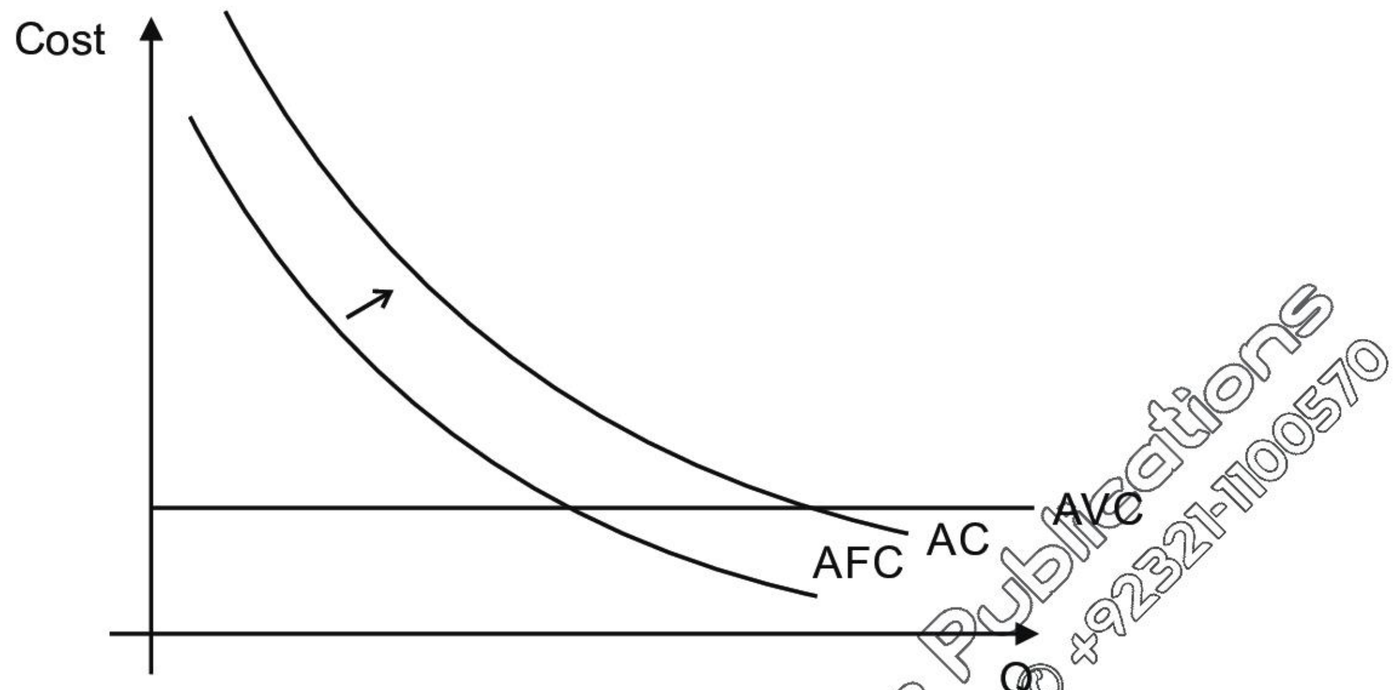
Average variable costs are constant, which can be shown by the diagram below.



The average fixed cost diagram is shown below.



As AC = AVC + AFC, therefore the constant AVC will be added to AFC curve which would be shown by a parallel upward shift to AFC as shown below to go the average cost curve



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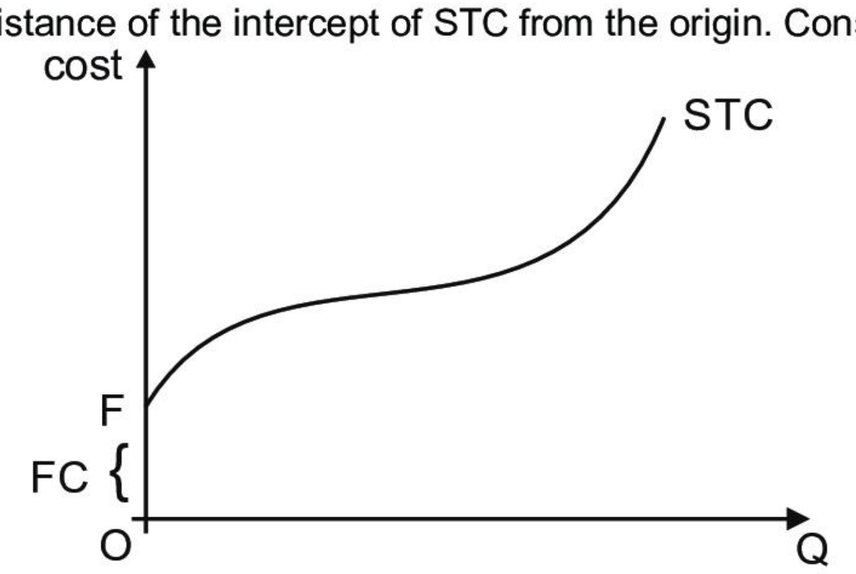
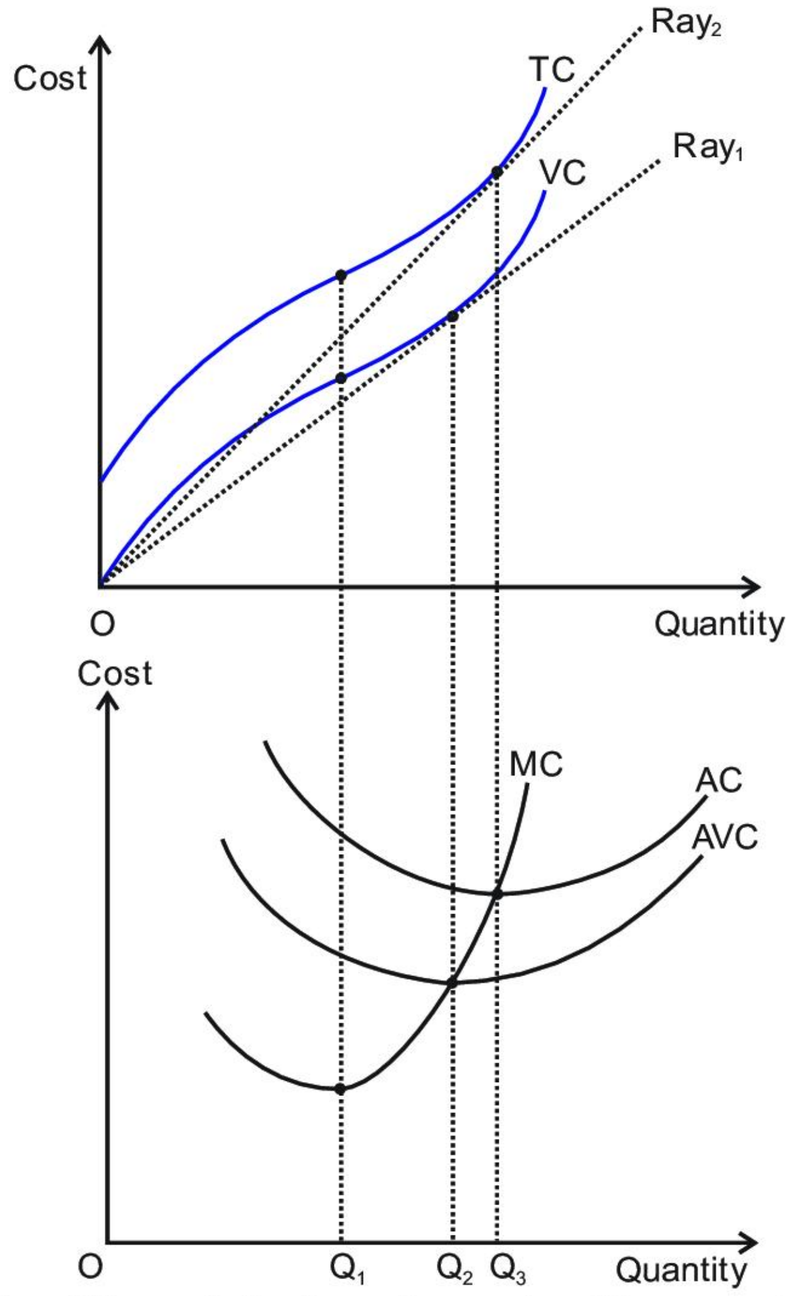
27. A

The fixed costs are measured by distance of the intercept of STC from the origin. Considering STC only as shown below:



Where STC = Short-run total cost.

28. B



Marginal cost is minimised where VC or TC are flattest or where rate of increase in total or variable cost changes from decreasing to increasing at output Q_1.

Average variable cost is minimised where ray from origin is flattest and tangent to VC curve as shown at output Q_2.

Average total cost (AC) is minimised ray from origin is flattest and tangent to TC curve as shown at output Q_3.

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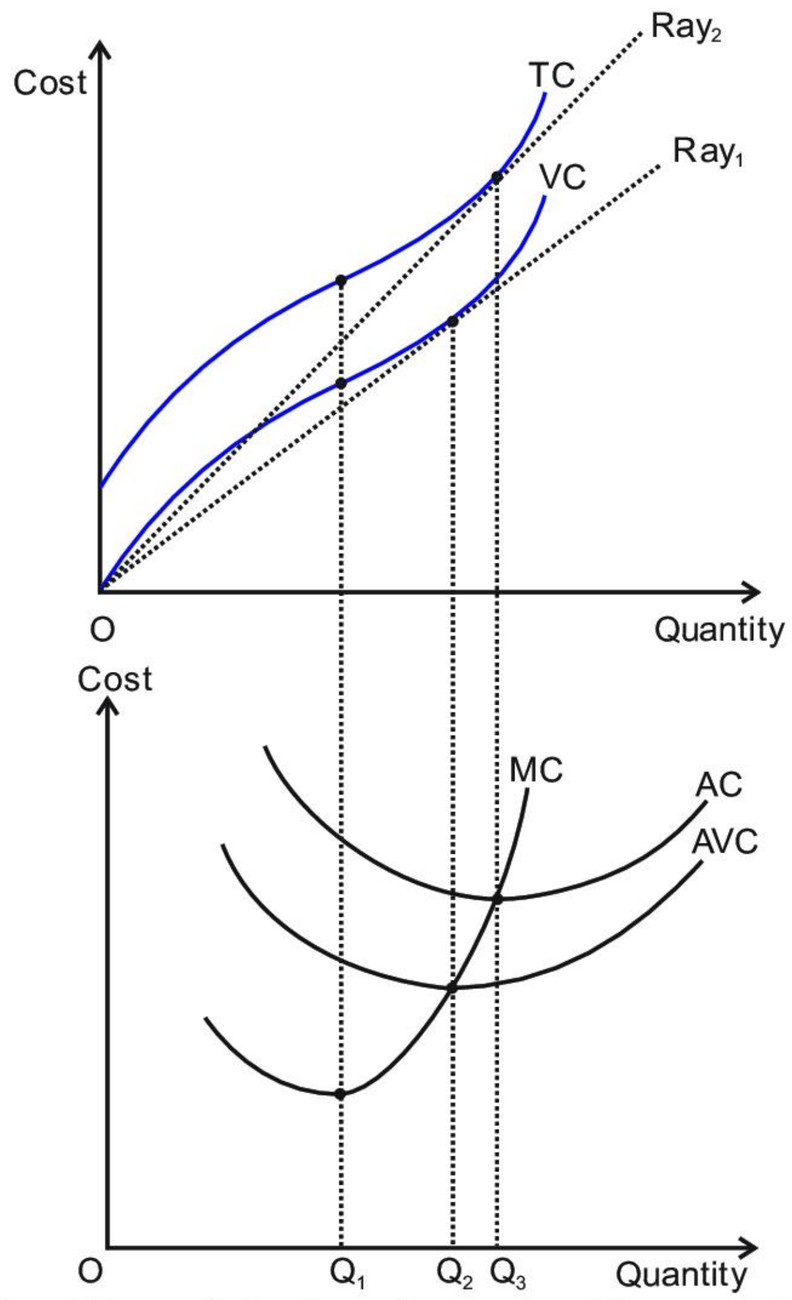
29. D



Marginal cost is minimised where VC or TC are flattest or where rate of increase in total or variable cost changes from decreasing to increasing at output Q_1.
Average variable cost is minimised where ray from origin is flattest and tangent to VC curve as shown at output Q_2.
Average total cost (AC) is minimised ray from origin is flattest and tangent to TC curve as shown at output Q_3.

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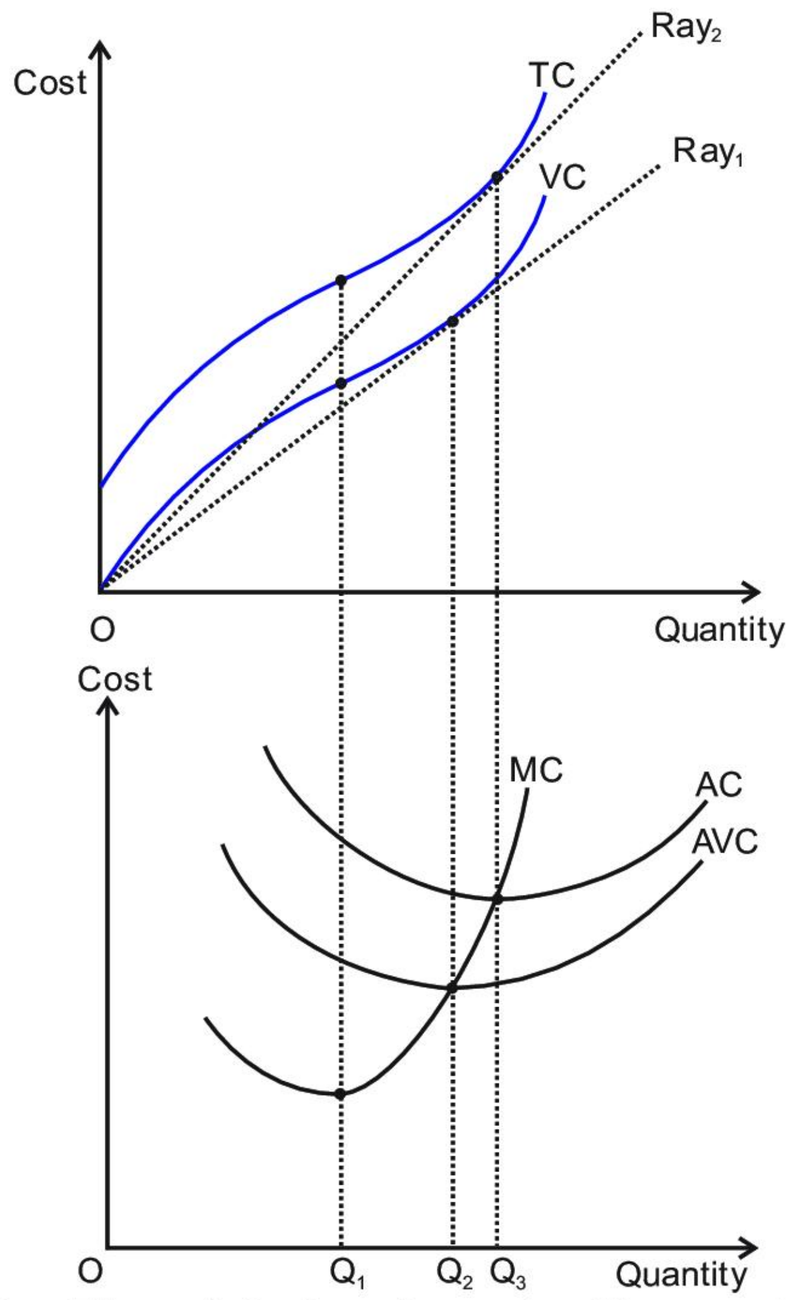
30. B



Marginal cost is minimised where VC or TC are flattest or where rate of increase in total or variable cost changes from decreasing to increasing at output Q_1.
Average variable cost is minimised where ray from origin is flattest and tangent to VC curve as shown at output Q_2.
Average total cost (AC) is minimised ray from origin is flatest and tangent to TC curve as shown at output Q_3.

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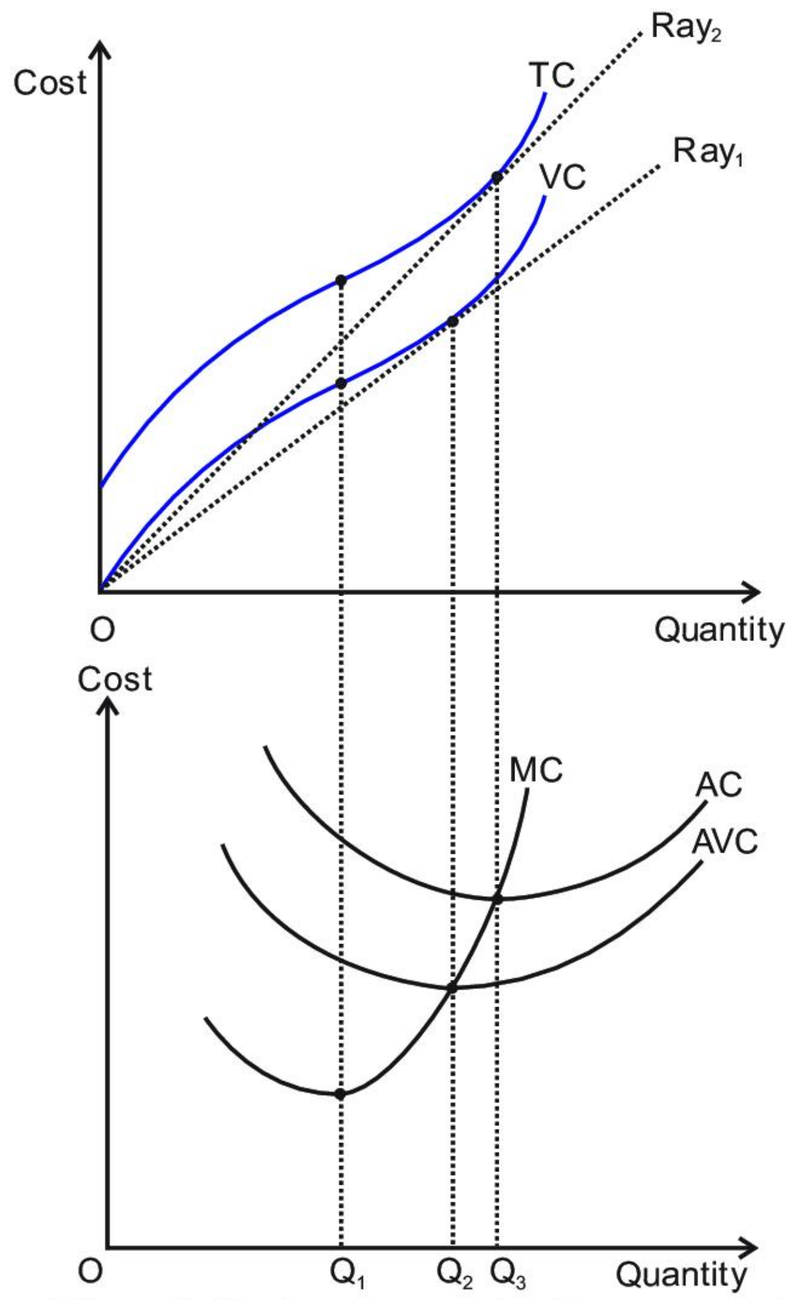
31. B



Marginal cost is minimised where VC or TC are flattest or where rate of increase in total or variable cost changes from dereasing to increasing at output Q_1.
Average variable cost is minimised where ray from origin is flatest and tangent to VC curve as shown at output Q_2.
Average total cost (AC) is minimised ray from origin is flatest and tangent to TC curve as shown at output Q_3.

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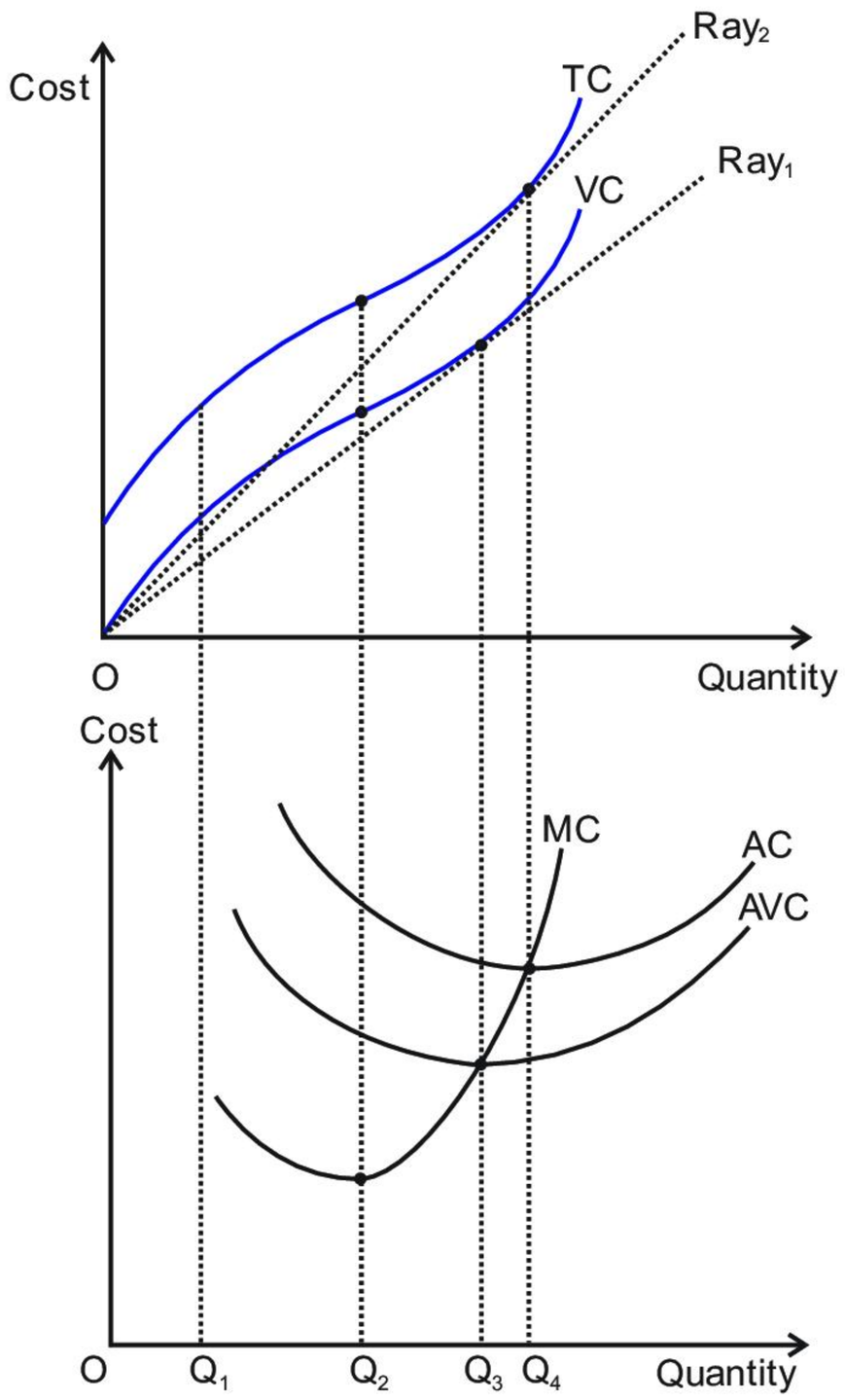
32. C



Marginal cost is minimised where VC or TC are flatest or where rate of increase in total or variable cost changes from decreasing to increasing at output Q_2.
Average variable cost is minimised where ray from origin is flattest and tangent to VC curve as shown at output Q_3.
Average total cost (AC) is minimised ray from origin is flattest and tangent to TC curve and it will be at output Q_4.
The ray which is tangent at Q_3 is not starting from origin and therefore is not relevant. Here Q_1 is not relevant.

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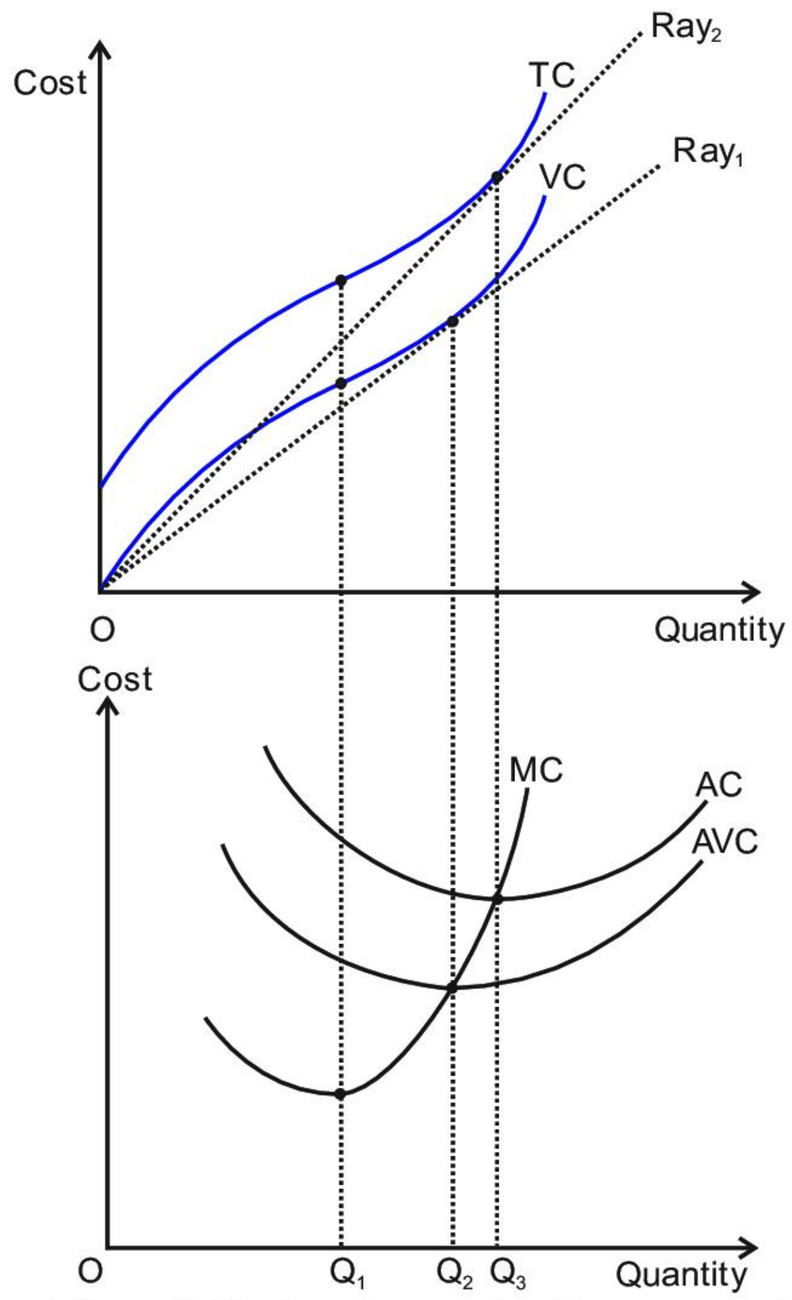
33. C



Marginal cost is minimised where VC or TC are flattest or where rate of increase in total or variable cost changes from decreasing to increasing at output Q_1.
Average variable cost is minimised where ray from origin is flattest and tangent to VC curve as shown at output Q_2.
Average total cost (AC) is minimised ray from origin is flatest and tangent to TC curve as shown at output Q_3.

34. D

The tangent at R can measure average total cost but not the average fixed. The total cost consists of fixed costs and variable cost. The distance OA shows total fixed cost whereas OQ is total quantity. As per formula:

$$\text{AFC}=\frac{\text{FC}}{\text{Q}}=\frac{\text{OA}}{\text{OQ}}$$

35. B

According to the diagram, the fixed costs are OX, which is constant. However, average fixed cost will decrease with increase in output because AFC = FC/Q.
Moreover, the marginal costs essentially consist of gradient of total cost curve. According to total cost curve, it is increasing with increasing rate; hence, marginal costs will also increase with increase in output.

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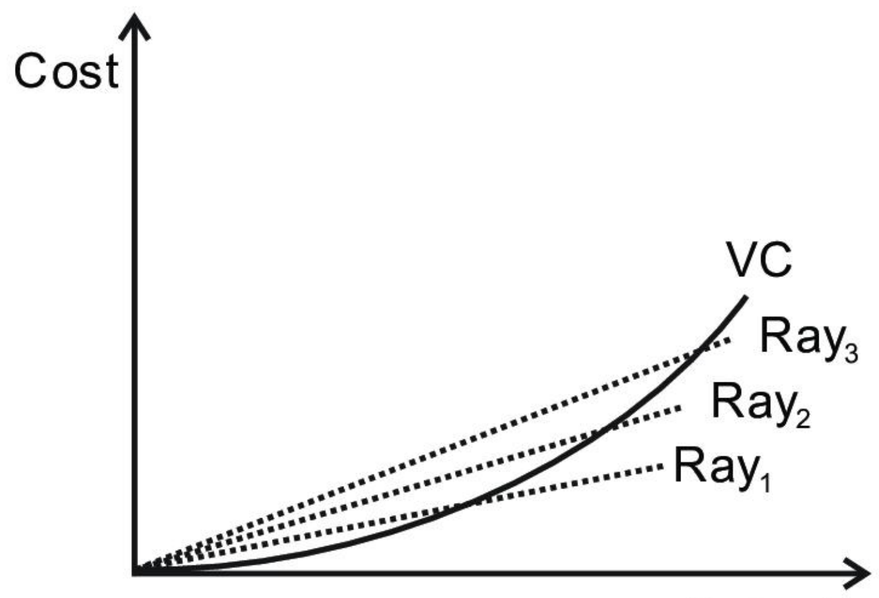
36. B

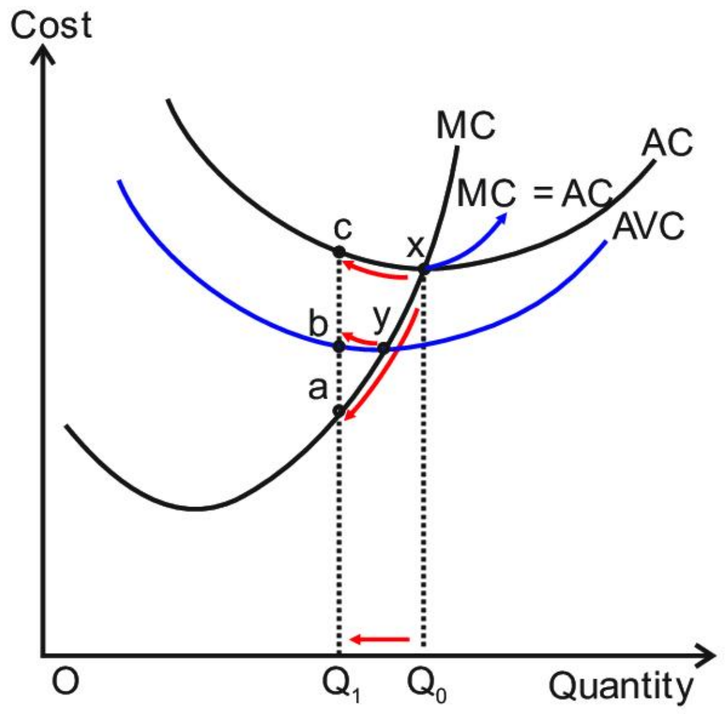
According to the diagram, the fixed costs are OX, which is constant. However, average fixed cost will decrease with increase in output because AFC = FC/Q.

Average variable cost (AVC) can be found by taking the gradient of rays from origin on VC curve. According to the diagram below, rays get steeper with every increase in output and therefore AVC increases.



37. A

When firm produces at '*x*' the average cost and marginal cost are same. However reduction in output to Q_1 will increase average cost to 'c', average variable cost will increase from 'y' to 'b' and marginal cost decreases from 'x' to 'a'as shown in the diagram below.



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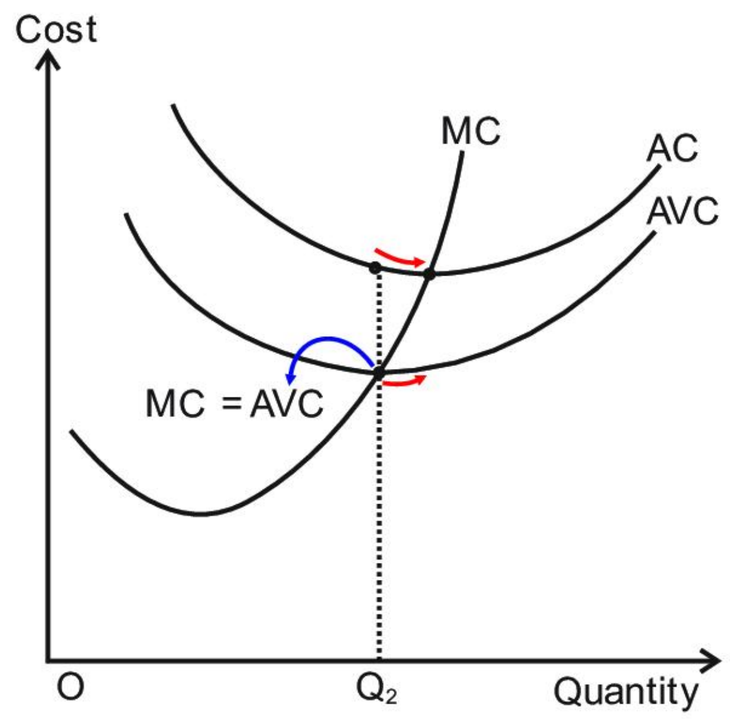
38. C

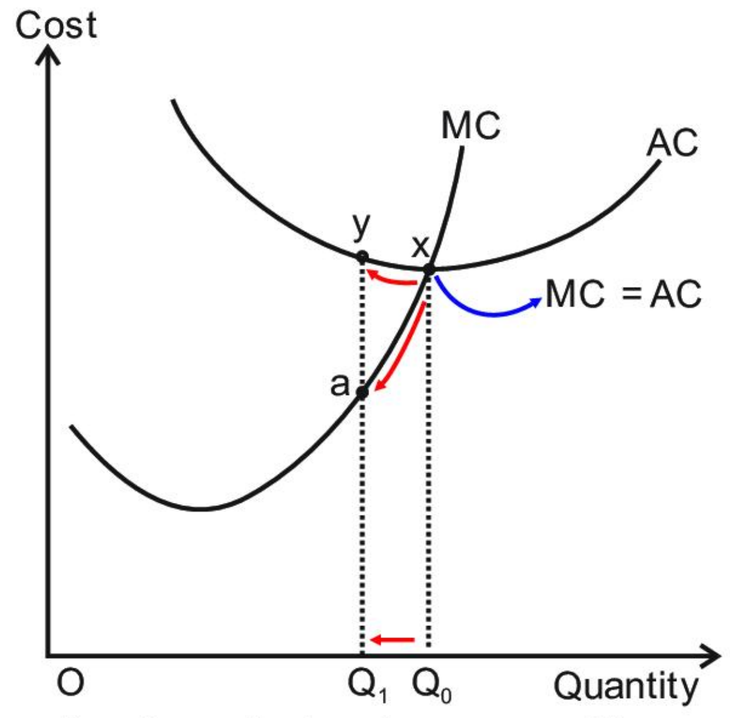
This can be illustrated through a diagram below firm should be operating where MC = AVC.



The level of output mentioned in question statement is denoted by Q_2. As seen through diagram, if quantity increased initially, the average variable cost starts to increase whereas the average cost is still decreasing at that level.

39. B

The effect of a firm producing at minimum average cost per unit, can be shown in diagram below:



When firm produces at '*x*' the average cost and marginal cost are same. However reduction in output to Q_1 will increase average cost to 'y', while decreasing marginal cost to 'a'. The total cost will decrease as it is directly proportional to output always.

40. D

As AC = AFC + AVC

After output Q_1, AVC starts rising but AC still falls up to output Q_2. This only possible if other component of AC., i.e., AFC falls and out weights the effect of rise in AVC up to output Q_2. Afterwords the effect of rising AVC becomes stronger than falling AFC & therefore AC rises. Hence only possible answer is overheads (fixed cost) is spread over larger volume of output.

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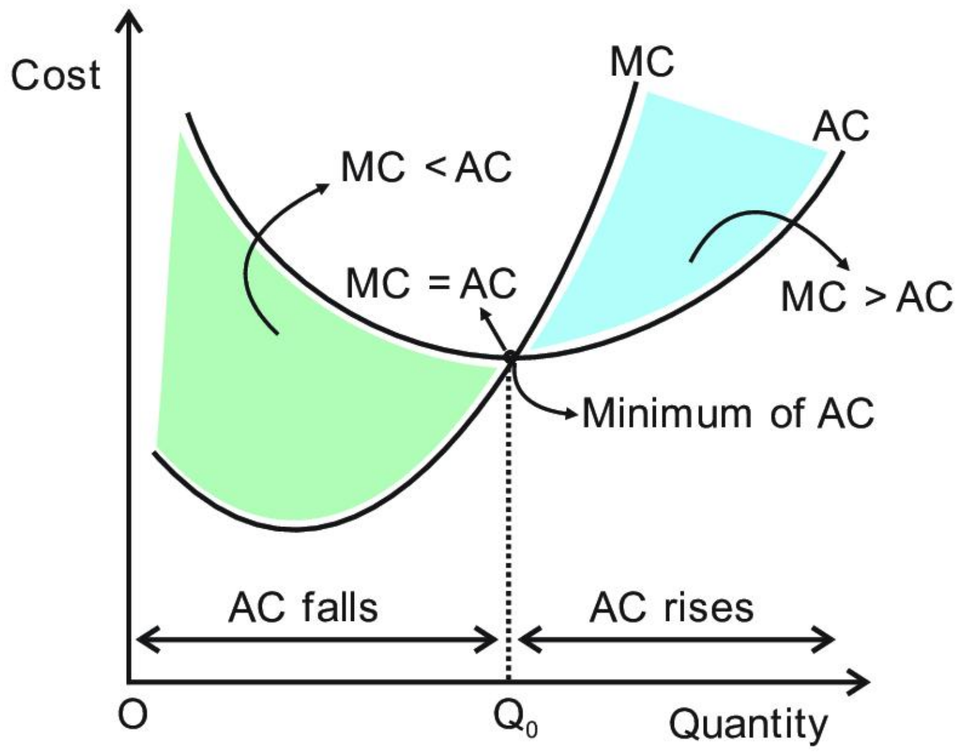
41. A

Short-run average cost (AC) is the cost per unit of output produced. Short-run average cost (SRAC)depends on the behavior of marginal cost. The SRAC curve slopes downwards until Q_0 because, till that point, marginal cost is less than unit cost. After Q_0, the short-run average cost curve begins to rise because, from that point onwards, MC is higher than SRAC.



It has been established that the shape of the short-run average cost curve is determined by the shape of the marginal cost curve, which in turn is determined by the law of diminishing returns which is also known as law of variable proportions. The type of return experienced depends on the degree of access workers have to machines and on the scope for division of labour.

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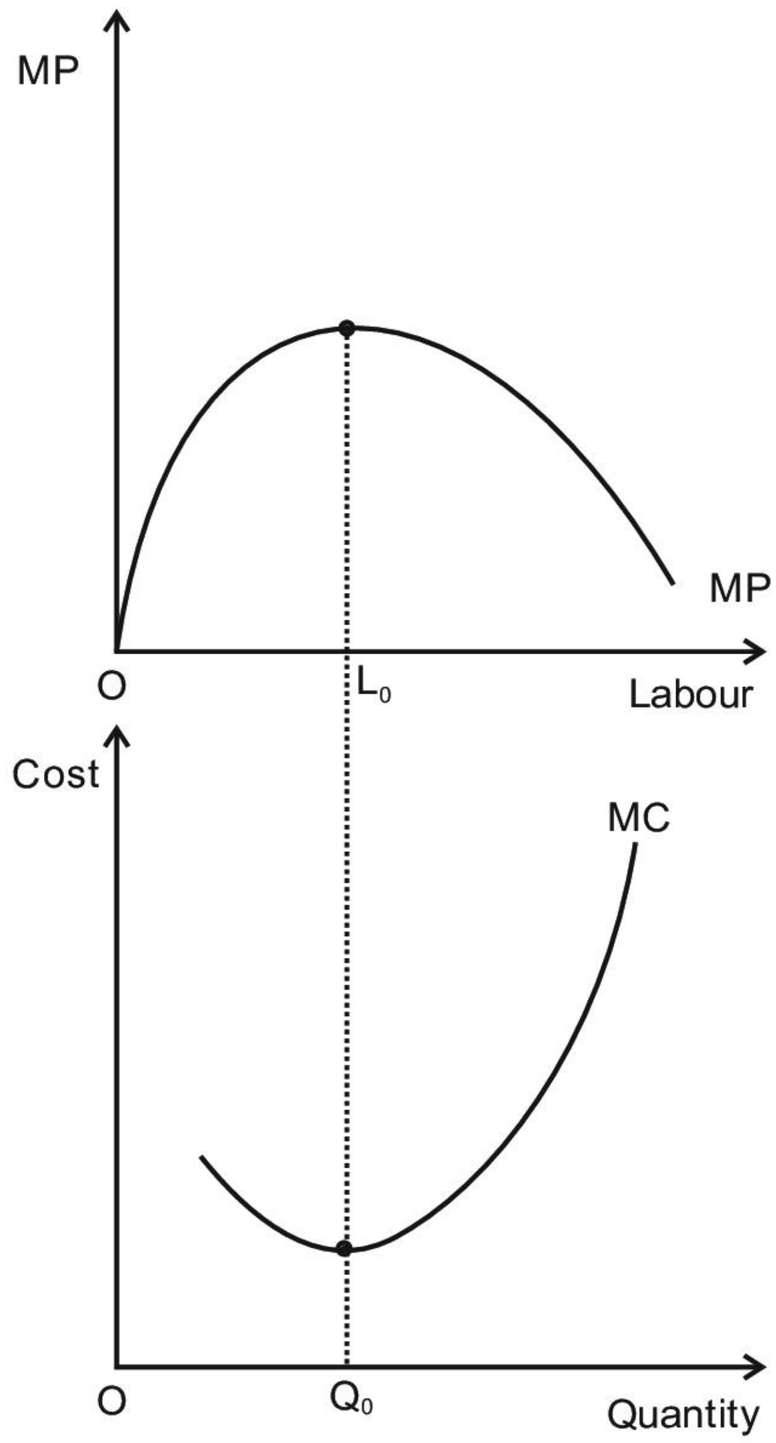
42. D

In the diagram below, the marginal cost curve is shown as a curve that reaches a minimum at Q_0,and then begins to rise. It looks similar to an inverted marginal product curve.



Marginal product (MP) is the addition to total product when an additional factor is used, while marginal cost (MC) refers to the cost of producing an extra unit. Extra units are manufactured by employing additional workers. Assume that each worker receives the same wage. Initially, each extra worker is able to produce more than the previous worker because, at first, the extra workers have easy access to a fixed number of machines and the principle of division of labour can be applied. Since the firm is initially obtaining an increasing marginal product with a constant outlay on wages, marginal costs continue to fall till output Q_0.Beyond Q_0, diminishing returns set in and the firm's marginal product decreases with a constant outlay on wages. The fixed factor is exhausted and workers experience a delayed access to machines. Therefore, as marginal product diminishes, marginal cost increases.
Therefore, the shape of MC is indirectly explained through MP which is explained by law of variable proportions or law of diminishing returns.

43. D

At ON, the marginal product is zero therefore marginal cost will be minimum.

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2.5 Returns to scale

1. M/J 15/P31/Q7
When a firm increases all its inputs by 300%, its output increases by 400%.
What does this illustrate?

A diseconomies of scale
B increasing returns to scale
C the law of diminishing returns
D the law of variable proportions

2. O/N 15/P33/Q7
A firm's long-run production function shows that a 40% increase in its inputs leads to a 20% increase in output.
What is the firm experiencing?

A decreasing returns to scale
B diminishing returns
C increasing returns
D increasing returns to scale

3. O/N 98/P3
When firm increases all its inputs fourfold, its output increases threefold.
What does this illustrate?

A decreasing marginal costs.
B decreasing returns to scale.
C economies of scale.
D the law of diminishing returns.

4. O/N 96/P3
In an industry in which factor prices are constant, a 5% increase in all factor inputs results in a 4% increase in output.
What does this illustrate?

A a decreasing cost industry.
B decreasing returns to scale.
C the law of diminishing returns.
D the law of variable proportions.

5. Dec. 83,O/N 91/P3
It is observed in a firm that when all factor inputs are doubled, output more than doubles, while when only one input is doubled the marginal physical product of that input declines. Such production relationship show

A decreasing returns to scale and conformity with the law of diminishing returns.
B constant returns to scale and conformity with the law of diminishing returns.
C increasing returns to scale and conformity with the law of diminishing returns.
D decreasing returns to scale and contravention of the law of diminishing returns.

6. M/J 15/P33/Q8
The table shows the quantity of inputs needed to produce different levels of output.

Output	Inputs
100	5
200	10
300	15
400	19
500	25

Over which output range do increasing returns to scale occur?

A 100 –200 **B** 200 –300 **C** 300 –400 **D** 400 –500

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7. M/J 13/P31/Q6

The table shows the inputs of the two factors of production, capital and labour, needed to produce varying levels of output.

output	capital	labour
100	5	10
200	8	16
300	12	24
400	16	32
500	24	48

Over which range of output do decreasing returns to scale occur?

A 100 to 200 **B** 200 to 300 **C** 300 to 400 **D** 400 to 500

8. O/N 13/P33/Q9

The table shows the inputs of the two factors of production, capital and labour, needed to produce varying levels of output.

output	capital	labour
100	5	10
200	8	16
300	12	24
400	20	40
500	30	60

Over which range of output do constant returns to scale occur?

A 100 to 200 **B** 200 to 300 **C** 300 to 400 **D** 400 to 500

9. O/N 09/P32/Q8

The table shows the inputs of the two factors of production, capital and labour, needed to produce varying levels of output.

output	capital	labour
100	5	10
200	8	16
300	14	28
400	20	40
500	26	52

Over which output range do increasing returns to scale occur?

A 100 to 200 **B** 200 to 300 **C** 300 to 400 **D** 400 to 500

10. O/N 14/P32/Q8

The table below shows the relationship between total output and total costs of a firm given constant factor prices and fixed factor proportions.

output	costs ($)
100	100
200	160
300	180
400	320
500	500

It follows that, over this range of output, the firm experiences

A decreasing returns for output between 100 and 300 and increasing returns for output larger than 300.

B increasing returns for output between 100 and 300 and decreasing returns for output larger than 300.

C decreasing returns throughout.

D increasing returns throughout.

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11. O/N 11/P32/Q7

The table shows the levels of output of a good which can be produced with different combinations of labour and capital.

capital (number of machines)	labour (number of workers)	output (units)
2	6	100
2	7	106
2	8	108
4	12	200

Which characteristic of the production function for this good does the table show?

A a fixed ratio between capital and labour inputs
B constant returns to scale
C increasing marginal productivity of labour
D technical economies of scale

12. M/J 02,O/N 05/P3/Q12

The table below shows the relationship between total output and total costs of a firm given constant factor prices and fixed factor proportions.

output	costs ($)
100	80
200	180
300	300
400	440
500	600

It follows that, over this range of output, the firm experiences

A decreasing returns for output between 100 and 300 and increasing returns for output larger than 300.
B increasing returns for output between 100 and 300 and decreasing returns for output larger than 300.
C decreasing returns throughout.
D increasing returns throughout.

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Answers Section

1. B
This statement is linked with increase in scale of production which occurs when a firm increases its all inputs to increase its production. If percentage increase in output is greater than percentage change in all inputs then there are increasing returns to scale. If percentage change in output is equal to percentage change in all inputs then this shows constant returns to scale. However if percentage change in output is lesser than percentage change in all inputs then there are diminishing returns to scale. The statement confirms to increasing returns to scale.
Hence, as an increases all its inputs by 300%, its output increases by 400%, it is increasing returns to scale case.

2. A
This statement is linked with increase in scale of production which occurs when a firm increases its all inputs to increase its production. If percentage increase in output is greater than percentage change in all inputs then there are increasing returns to scale. If percentage change in output is equal to percentage change in all inputs then this shows constant returns to scale. However if percentage change in output is lesser than percentage change in all inputs then there are diminishing returns to scale. The statement confirms to increasing returns to scale.
Hence, as an increases all its inputs by 40%, its output increases by 20%, it is diminishing returns to scale case.

3. B
This concept is related with increase in scale of production. If the percentage change in all inputs is fourfold and output increases threefold, this means that percentage change in all inputs is greater than percentage change in output. This shows increasing returns to scale.

4. B
This statement is linked with increase in scale of production which occurs when a firm increases its all inputs to increase its production. If percentage increase in output is greater than percentage change in all inputs then there are increasing returns to scale. If percentage change in output is equal to percentage change in all inputs then this shows constant returns to scale. However if percentage change in output is lesser than percentage change in all inputs then there are diminishing returns to scale. The statement confirms to increasing returns to scale.
Hence, as an increases all its inputs by 5%, its output increases by 4%, it is diminishing returns to scale case.

5. C
The statement can be divided into two parts. First one is “When all factor input are doubled, output more than doubles.” This statement is linked with increase in scale of production which occurs when a firm increases its all inputs to increase its production. If percentage increase in output is greater than percentage change in all inputs then there are increasing returns to scale. If percentage change in output is equal to percentage change in all inputs then this shows constant returns to scale. However if percentage change in output is lesser than percentage change in all inputs then there are diminishing returns to scale. The statement confirms to increasing returns to scale.
The second part of statement is “When only one input is doubled the marginal physical product of the input declines.” This relates to law of diminishing marginal returns which states that with the increase in variable factor (input) with the fixed factors, marginal product initially rises but eventually declines. Hence the statement is in conformity with law of diminishing marginal returns.

6. C
Increasing returns to scale occur when percentage change in all inputs is lesser than percentage changed in all output. The increasing returns can be calculated through table below.

Output	% change in output	Inputs	% change in inputs
100		5	
200	100%	10	100%
300	50%	15	50%
400	**33%**	**19**	**26.7%**
500	25%	25	31.6%

When output increases from 300 to 400, increasing returns to scale occur as shown by table.

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7. D

Increasing returns to scale occur when percentage change in all inputs is lesser than percentage changed in all output. The increasing returns can be calculated through table below.

Output	% change in output	Capital	Labour	% change in inputs
100		5	10	
200	100%	8	16	60%
300	50%	12	24	50%
400	33.3%	16	32	33.3%
500	**25%**	**24**	**48**	**50%**

When output increases from 400 to 500, decreasing returns to scale occur as shown by table.

8. B

Increasing returns to scale occur when percentage change in all inputs is lesser than percentage changed in all output. The increasing returns can be calculated through table below.

Output	% change in output	Capital	Labour	% change in inputs
100		5	10	
200	100%	8	16	60%
300	**50%**	**12**	**24**	**50%**
400	33.3%	20	40	66.7%
500	25%	30	80	50%

When output increases from 200 to 300, constant returns to scale occur as shown by table.

9. A

Increasing returns to scale occur when percentage change in all inputs is lesser than percentage changed in all output. The increasing returns can be calculated through table below.

Output	% change in output	Capital	Labour	% change in inputs
100		5	10	
200	**100%**	**8**	**16**	**60%**
300	50%	14	28	75%
400	33%	20	40	43%
500	25%	26	52	30%

When output increases from 100 to 200, increasing returns to scale occur as shown by table.

10. B

The table below helps to show the relationship between percentage change in output and percentage change in total cost.

Output	% change in output	Costs ($)	% change in costs
100	--	80	--
200	100	180	125
300	50	300	66
400	33	440	46
500	25	600	36

As percentage change total costs is lesser than percentage change in output upto 300 units of output and greater after 300 units.

11. B

When we double inputs so capital goes from 2 to 4 and labor increases from 6 to 12, output also doubles from 100 to 200. So according to constant returns to scale output increases by the increase in proportion of all inputs which has happened in this case.

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12. C

The table below helps to show the relationship between percentage change in output and percentage change in total cost.

Output	% change in output	Costs ($)	% change in costs
100	--	80	--
200	100	180	125
300	50	300	66
400	33	440	46
500	25	600	36

As percentage change in total costs is greater than percentage change in output throughout the given range therefore decreasing returns to scale occur throughout.

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2.6 Economies and diseconomies of scale

1. M/J 16/P32/Q10, O/N 12/P31/Q8
Which is a risk-bearing economy of scale?

A greater bargaining power in purchasing from suppliers
B greater diversification of the product range
C lower costs in raising capital
D lower distribution costs by increasing market share

2. M/J 16/P33/Q11
What is true about economies of scale but not diseconomies of scale?

A They occur because average revenue is increasing.
B They occur because of management policy changes.
C They occur in the short run.
D They occur with decreasing average cost.

3. O/N 13/P32/Q9
What is an internal diseconomy of scale that often arises as a firm becomes larger?

A a more complex decision-making process
B an increase in the cost of raising finance for investment
C an increase in traffic congestion
D upward pressure on wages in the local labour market

4. M/J 12/P32/Q6, O/N 14/P14/Q10
Which is a financial economy of scale?

A lower costs in raising capital
B lower costs of marketing
C lower risk due to diversification
D lower variable costs of production

5. O/N 07/P32/Q8
Which of the following costs of a firm is most likely to rise as it expands?

A the rate of interest paid on borrowing
B the price of components
C the cost of monitoring workers' inputs
D energy costs per unit of output

6. O/N 06, M/J 10/P32/Q7, M/J 15/P31/Q9
Which of the following is an example of an external diseconomy?

A difficulties in co-ordinating activities in a large organisation
B difficulties in motivating workers in a large organisation
C higher transport costs as a firm's market expands
D increased traffic congestion as industries expand

7. M/J 06/P32/Q6
As firm X grows in size, it specialises in a narrower range of products.
Which economies of scale will the firm be **less** able to benefit from?

A financial **B** marketing **C** risk-bearing **D** technical

8. O/N 05/P32/Q10
As a firm expands, what is most likely to prevent its long run average costs falling?

A increased interest rates on borrowing
B increased labour specialisation
C increased labour supervision costs
D substitution of capital for labour

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9. M/J 05/P32/Q8
What is generally thought to be the main reason why firms might experience decreasing returns to scale when they grow beyond a certain size?

A financial diseconomies
B managerial diseconomies
C marketing diseconomies
D technical diseconomies

10. M/J 03/P32/Q7
Which of the following is an internal economy of scale?

A improved communications as a result of the growth of local industry
B lower risk associated with supplying a wider range of customers
C the training of skilled labour at a technical college financed by all local firms
D trade information from a new trade journal

11. M/J 00,M/J 07/P32/Q11
How might a firm benefit from external economies?

A by increasing its expenditure on advertising
B by increasing its scale of production
C by locating in an area in which the industry is already established
D by merging with another domestic firm engaged in the same industry

12. O/N 97,M/J 01/P32
Which way of reducing average costs is **not** an economy of scale?

A discounts on the bulk purchase of materials.
B increased specialization of labour.
C operating an existing plant nearer to its full capacity.
D raising large loans on more favorable terms.

13. M/J 97,O/N 02,M/J 07/P32/Q6
Which of the following is a financial economy of scale?

A less risk due to diversification
B lower costs in raising capital
C lower unit marketing costs
D lower unit production costs

14. M/J 96/P32
Which of the following is an internal economy of scale?

A cheaper loans from a local bank resulting from a merger.
B efficient local transport networks.
C specialist training facilities provided by a local college.
D the reputation of an area for a particular product.

15. O/N 95/P32
Which of the following gives rise to an example of an internal economy of scale?

A improvement communications as a result of the growth of local industry.
B lower risk associated with supplying a wider range of customers.
C the training of skilled labour at a technical college financed by all local firms.
D trade information from a new trade journal.

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Answers Section

1. B
Risk-bearing economies means spreading the risk over wide range of models, products and customers and it can be achieved by greater diversification of the product range.

2. D
Economies of scale occurs when a firm or industry expands in long run and long run average cost falls. On the other hand, LRAC increases in case of diseconomies of scale.

3. A
As a firm grows larger, managers are faced with the challenge to make increasingly complex decisions as one strategy or decision will impact the entire production process, so it is a diseconomy. As a firm grows, it becomes cheaper for it to borrow. An increase in traffic congestion arise as an industry expands rather than a firm becomes larger. Upward pressure on wages in the local labour market is also caused by the growth of industry rather than an individual firm.

4. A
Financial economies of scale refers to when due to a larger size, a firm finds it easier to raise capital and borrow loans from banks. So lower costs in raising capital is correct.

5. C
The most likely reason for a cost to increase due to expansion of firm is managerial diseconomies of scale the increase in cost of monitoring workers input is an example of managerial diseconomy of scale. As a firm expands, more workers would be hired therefore the cost of monitoring would increase.

6. D
External diseconomies are rise in LRAC due to expansion of industry. Only option where expansion of an industry has led to a diseconomy is traffic congestion.

7. C
By specializing in narrower range of products firm x won't be able to benefit from risk bearing economies. Instead of spreading risk on wide range of products firm X has accumulated risk for a narrow range of products.

8. C
The most likely reason to prevent a firm's LRAC to fall is diseconomies of scale which result through managerial diseconomies of scale. The problems of management would lead to increase in long run average cost. Hence among all options increased labour supervision cost is an example of managerial diseconomy and will prevent LRAC from falling because more labour will be hired when a firm expands leading to greater supervision costs.

9. B
The main reason for decreasing return to scale is that the firm experiences management difficulties and therefore managerial diseconomies of scale begin. In such cases problems control, communication problems and lack of coordination start to affect LRAC of the firm.

10. B
Internal economies of scale are benefits of lower LRAC when a firm expands. Among the options, ower risk associated with supplying a wider range of customers shows risk-bearing economies of scale. The other options show external economies of scale.

11. C
External economies of scale benefit of lower LRAC when an industry expands. In order to benefit from external economies of scale a firm does not need to expand its scale of operations. However, it does need to locate in an established industry to gain benefits such as better infrastructure, trained labour, govt. support etc.

12. C
Discounts on the bulk purchase of materials are marketing economies, increased specialization of labour shows technical economies, and raising large loans on more favorable terms shows financial economies of scale. Operating an existing plant nearer to its full capacity does not require a firm to expand its scale of production and will be a short-run concern rather than long-run and therefore is not an economy of scale.

13. B
Financial economies occur when a firm grows in size and earns financial advantages. A larger firm gets more chances to earn greater financial resources with lesser cost. For example, it can get loans on lower interest rate. According to options, the financial economies occur when a larger firm experiences lower costs in raising capital.

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14. A

Internal economies arise due to expansion of firm but external economies emerge from expansion of industry. Except cheaper loans from a local bank resulting from a merger, rest all are external economies.

15. B

Internal economy of scale occurs when a firm expands its operations in long run to benefit from lower long run average cost. Internal economies of scale include various economies such as financial, managerial, marketing, risk bearing, R&D and technical economies of scale. According to options, risk bearing economies scale occurs where diversification spreads risk and minimizes it.

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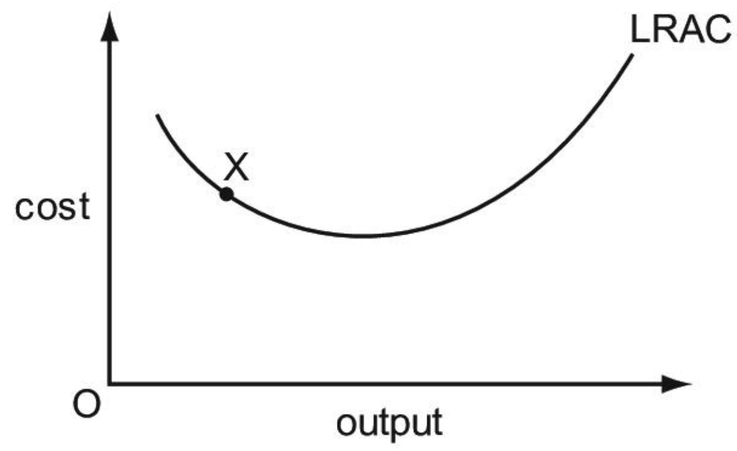
2.7 Minimum efficient scale

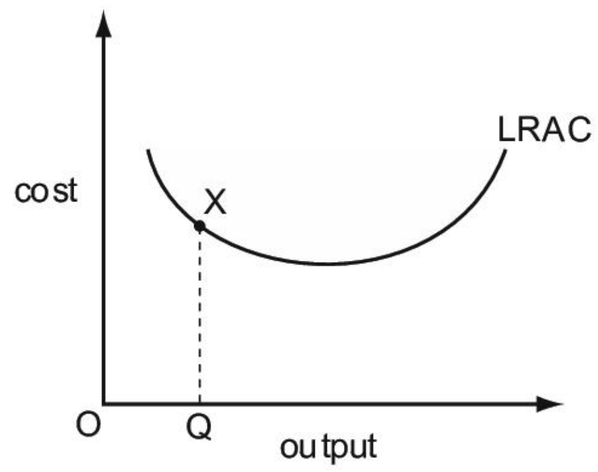
1. M/J 13/P31/Q5, M/J 09/P32/Q1, O/N 11/P33/Q1
In the diagram, the firm is operating at point X on its long-run average cost curve.



Which statement about the firm is correct?

A It is operating at its optimal level of output.
B It is operating at its cost-minimising level of output.
C It is operating its plant at full capacity.
D It is producing its current output at minimum cost.

2. O/N 11/P33/Q1
In the diagram, a firm is operating at point X on its long-run average cost curve.



Which statement is **not** correct?

A The firm is employing the least-cost combination of factor inputs to produce OQ.
B The firm is operating below its minimum efficient scale.
C The firm is producing at its cost-minimising level of output.
D The firm is producing output OQ at minimum cost.

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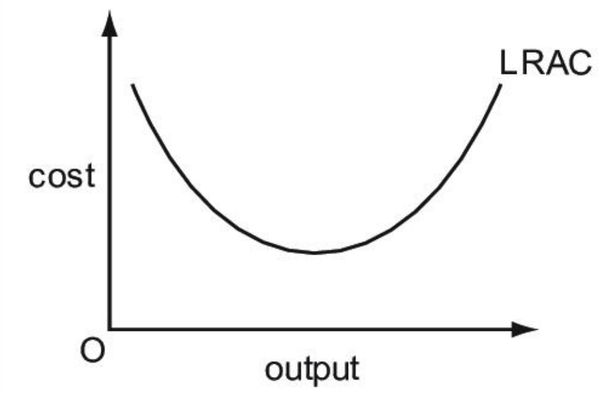
3. M/J 13/P32/Q8

The diagram shows the long-run average cost curve of a firm which faces constant factor prices.

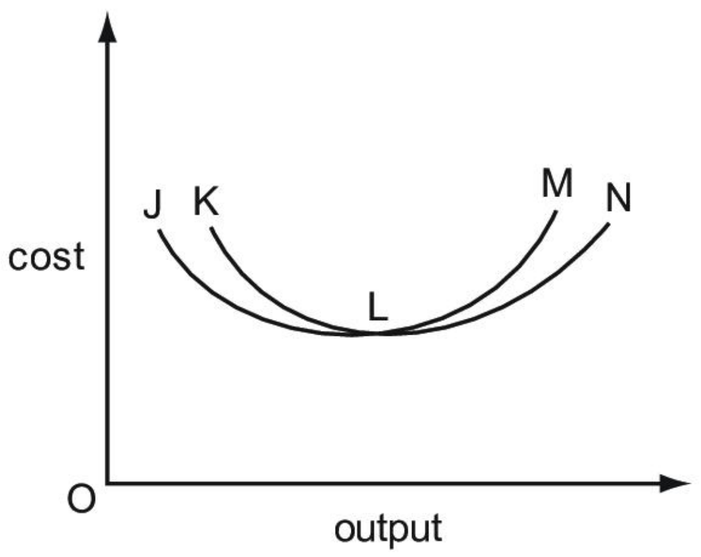


Which economic concepts in the table explain the shape of the LRAC curve?

	economices and diseconomies of scale	the law of diminishing returns	the law of variable proportions
A	✓	✓	✗
B	✓	✗	✗
C	✗	✓	✓
D	✗	✗	✓

4. M/J 12/P32/Q9, M/J 16/P31/Q12

The diagram shows a firm's short-run and long-run average cost curves.



Which curve is the firm's long-run average cost curve?

A JLN

B JLM

C KLM

D KLN

5. M/J 12/P32/Q5

A firm experiences diseconomies of scale over its entire range of output.
What is the shape of its long-run average cost curve?

A It is horizontal.

B It is 'U' shaped.

C It slopes downwards.

D It slopes upwards.

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6. O/N 95/P3

Which of the following defines the minimum efficient scale of output?

A where a plant of a given size is used to full capacity.

B where the firm can avoid making a loss.

C where the firm's operating profits are maximized.

D where the long-run average costs of a firm stop falling.

7. M/J 95/P3

The table provides information on the minimum efficient plant size as a percentage of UK sales of selected products.

Product	minimum efficient plant size as % of UK sales
Bread	1
Detergent	20
Electric cookers	30
Diesel engines	56
TV tubes	100

Which statement is justified in the basis of this information?

A Plants producing diesel engines employ more workers than those producing detergents.

B The domestic market is too small to support three efficient producers of diesel engines.

C The producers of electric cookers are less efficient than the producers of diesel engines.

D The production of TV tubes is most likely to experience diseconomies of scale.

8. O/N 03/P3/Q11

Which statement about the long-run average cost curve of a firm is correct?

A It falls continuously because of economies of scale.

B It passes through the minimum points of the firm's short-run average cost curves.

C It assumes that factor input proportions are held constant as output increases.

D It indicates the minimum average cost at which each level of output can be produced.

9. M/J 93,M/J 99/P3

What would explain why a firm's long-run average cost curve is U-shaped?

A an increase in capacity utilization as output expands.

B changes in technology.

C economies and diseconomies of scale.

D rising factor prices after a certain level of output.

10. M/J 15/P3/Q9

A firm experiences external diseconomies of scale and decreasing returns to scale.
How would these changes be illustrated on a cost curve diagram?

	shift in long-run average cost curve	movement along long-run average cost curve
A	downward	downward
B	downward	upward
C	upward	downward
D	upward	upward

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11. O/N 12/P32/Q9, M/J 09/P3/Q6

A manufacturing firm has one plant of optimum size.
The firm builds a second plant identical to its first plant. The firm then finds that its long-run average cost has risen.
What could account for the change in its long-run average cost?

A diminishing returns

B external diseconomies of scale

C managerial diseconomies of scale

D technical diseconomies of scale

12. M/J 05/P3/Q10

What is the shape of the long run average cost curve for a firm with economies of scale?

A It is horizontal.

B It is 'U' shaped.

C It slopes downwards.

D It slopes upwards.

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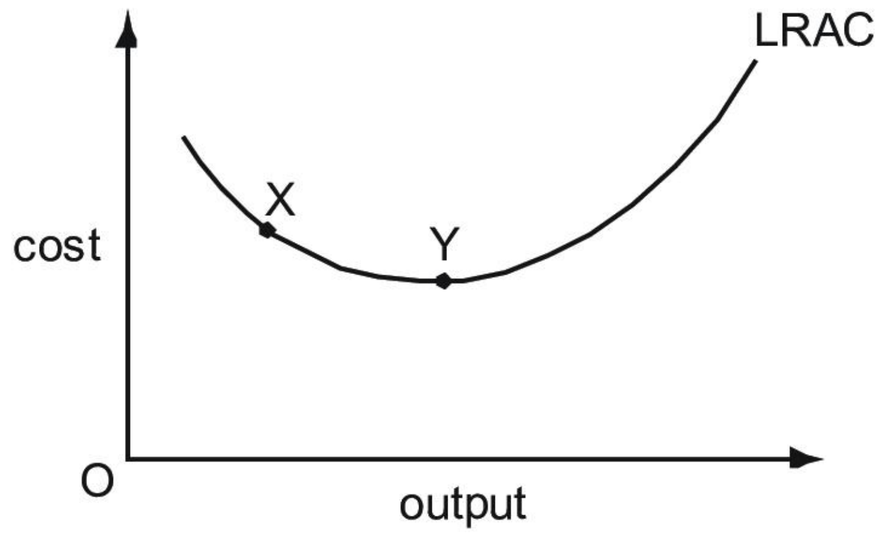
Answers Section

1. D

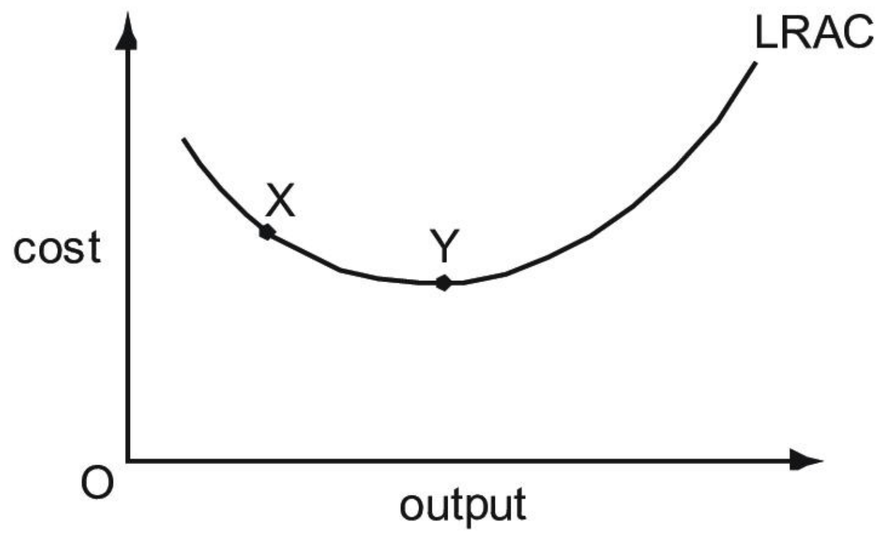
The current level of output is already produced at its lowest possible cost because all points on long run average cost curve are productive efficient for the respective level of output.
As seen from the diagram below, the firm is operating at point X which is below its minimum efficient scale point Y.



Hence, it is not operating at optimal level of output.

2. C

All points on long run average cost (LRAC) show the minimum possible cost for their relevant output level and being constructed by employing the least-cost combination of factor inputs.
As seen from the diagram below, the firm is operating at point X which is below its minimum efficient scale point Y.



Hence, it is not operating at cost minimising level of output.

3. B

The law of diminishing returns is also known as law of variable proportions and is only applicable to short run production so does not contribute to the shape of LRAC.

4. A

In theory, a firm's long run curve forms an envelope around the short run curve. So the long run curve has many short run average cost curves in it. So the long run average cost curve will be JLN, so that it covers the short run cost curve KLM.

5. D

Diseconomies of scale suggest that, as the firm increases its output, average unit costs go up. So the long-run average cost curve will be upward sloping.

6. D

Minimums efficient scale is that point on long run overage cost curve where economies of scale diminish and diseconomies of scale are just about to begin. In other words, the lowest point of LRAC.
Plant capacity utilization is short run concern. Profits or losses can not be determined by the LRAC only.

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7. B

The table provides information on the minimum efficient plant size as percentage of UK sales. In order to find the number of total efficient firm one industry can support, we need to use the following formula.

$$\text{Number of efficient firms in one industry} = \frac{100}{\text{market share of one firm}}$$

The table below shows number of firms each industry supports.

Product	Minimum efficient plant size as /of UK sales	No. of efficient firms in one industry
Bread	1	100/1=100
Detergent	20	100/20=5
Electric cookers	30	100/3=3.3⇒3
Diesel Engines	56	100/56=1.8⇒1
TV tubes	100	100/100=1

As seen through table, the domestic market of diesel engines is too small to support three efficient producers and can only support up-to one efficient firm.

8. D

Long-run average cost is affected by economies and diseconomies of scale. Combining both economies and diseconomies of scale will lead to a U-shaped long run average cost curve rather than falling continuously.
LRAC is an envelope curve to SRAC curves and therefore doesnt pass through the minimum points of the firm's short-run average cost curves.
In long run, all inputs are variable and input prices may also change and therefore firm may change from labour intensive to capital intensive or vice versa , hence factor proportion may not be kept constant.
All points on long run average cost show the lowest possible cost for their relevant output level and therefore is correct option.

9. C

Long-run average cost is affected by economies and diseconomies of scale. Internal economies of scale make it fall and internal diseconomies of scale lead to rising long run average cost . Combining both economies and diseconomies of scale will lead to a U-shaped long run average cost curve.

10. D

Internal economies and diseconomies of scale or returns to scale cause a movement along the same LRAC and external economies and diseconomies end up with the shift in LRAC curve.
As there are external diseconomies means an increase in cost and therefore upword shift in LRAC. On the other hand, there are decreasing returns to scale which means increasing average cost leading to upward movement along LRAC.

11. C

As the firm goes beyond its optimum size through internal growth, it experiences internal diseconomies of scale. These diseconomies of scale are related to management problems such as lack of communication, lack of coordination, etc. Therefore, the firm is essentially experiencing managerial diseconomies of scale.
Diminishing returns cannot take place because long run average costs have risen and the law of diminishing returns does not apply in the long run. It cannot be external diseconomies of scale since there is no mention of any external conditions that may have increased the firm's long run costs. If the plants are identical and have the same machinery then it not possible that one is experiencing higher costs. Therefore it must be managerial diseconomies of scale since the two plants must be more difficult to manage than one.

12. C

Long-run average cost is affected by economies and diseconomies of scale. Internal economies of scale occur when a firm expands its scale of production and benefit with lower long run average cost as decrease in short run average cost occurs. LRAC will be downward sloping for the range of output it is experiencing economies of scale.

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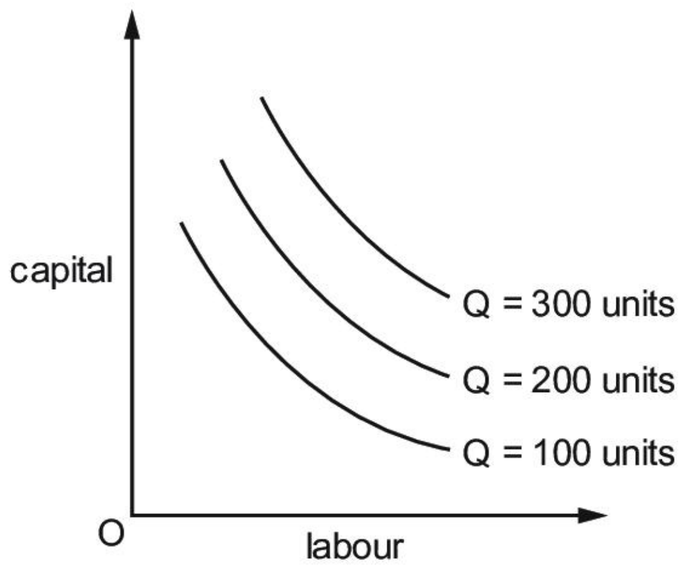
2.8 Isoquant and isocost

1. M/J 14/P31/Q7, O/N 11/P31/Q6, O/N 11/P33/Q5, M/J 14/P33/Q7

A firm employs two factors of production, capital and labour.
The curves in the diagram show the different combinations of capital and labour a firm needs to produce given levels of output.

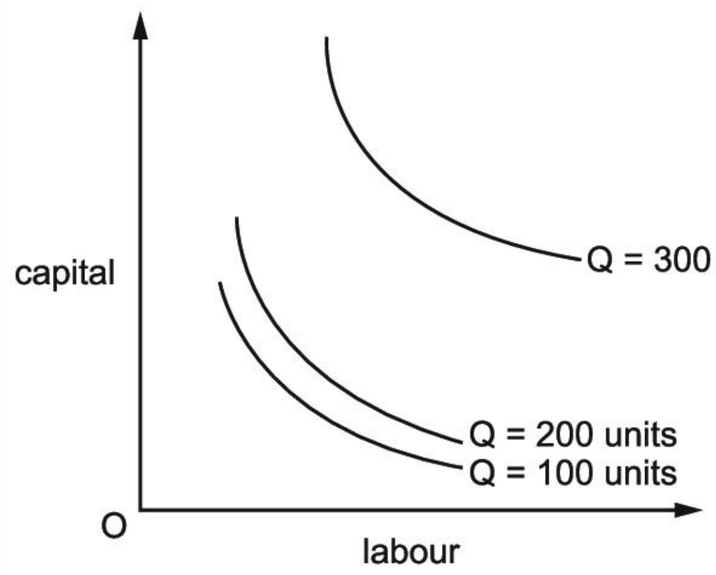


What does the diagram show?

A the firm's long-run production function
B the firm's long-run total cost function
C the firm's short-run production function
D the firm's short-run total cost function

2. O/N 14/P33/Q8

The curves in the diagram show the different combinations of capital and labour a firm needs to produce given levels of output.



What can be concluded from a comparison of curves in the diagram?

A Over the 100 to 200 units output range, the firm encounters constant returns to scale.
B Over the 100 to 200 units output range, the firm encounters decreasing returns to scale.
C Over the 200 to 300 units output range, the firm encounters decreasing returns to scale.
D Over the entire range of output, the firm encounters increasing returns to scale.

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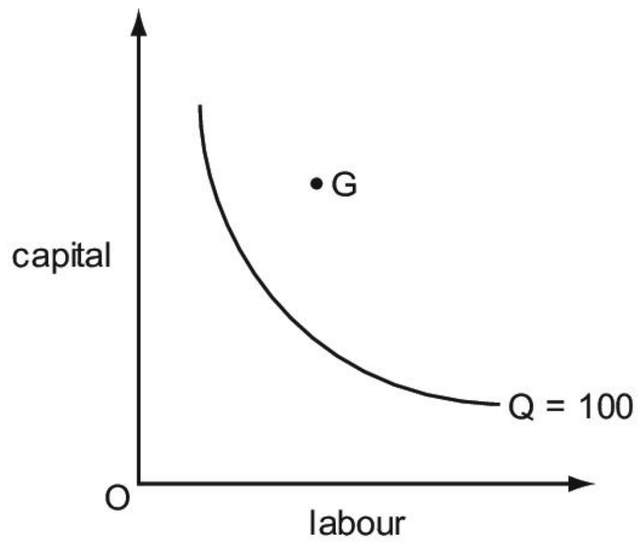
3. M/J 13/P32/Q14

The curve in the diagram shows the minimum combinations of capital and labour that are needed to produce 100 units of output.



A firm's management hires the combination of capital and labour indicated by point G in the diagram to produce 100 units of output.

Which term best describes this situation?

A lack of specialisation
B managerial diseconomy
C market failure
D X-inefficiency

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Answers Section

1. A
In isoquant diagram, a firm changes its output by changing all of its inputs i.e. both labour and capital in this case and therefore it indicates long run production function of the firm.

2. C
According to the diagram for output to rise from 100 to 200, lesser proportionate inputs increase is needed and therefore the firm encounters increasing returns to scale. Whereas between 200 to 300 output there is more proportionate increase in inputs than output and therefore the firm encounters decreasing returns to scale.

3. D
X-inefficiency refers to when a firm a firm does not use the best possible combination of inputs in order to produce an output. So an x-efficient firm will be one which produces on the curve but since this firm produces at point G, it is using technology and its resources inefficiently, so it is x-inefficient.

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2.9 Small firms

1. M/J 16/P32/Q12
In many developed economies, clothes are designed by small firms and retailed by large firms.
What is the most likely explanation for this pattern?

	clothes design firms	clothes retail firms
A	need to be flexible to cope with frequent fashion changes	need to exploit marketing economies of scale
B	need to employ highly specialised and skilled workers	need to operate at a low minimum efficient scale
C	need to operate at a high minimum efficient scale	need to offer a wide range of products to survive
D	need to overcome high barriers to entry into the industry	need to take advantage of technical economies of scale

2. O/N 15/P31/Q8, M/J 12/P33/Q10, M/J 12/P33/Q10, M/J 08/P3/Q8
What is most likely to explain why both large and small firms are often found within the same industry?

A All firms in the industry produce identical products.
B Firms that assemble the final product buy components from specialist firms within the industry.
C Production within the industry is subject to diseconomies of scale.
D There are significant barriers to the entry of new firms into the industry.

3. M/J 15/P31/Q10
What makes it easier for a small firm to compete against large firms in the same industry?

A The nature of the industry's product is highly standardised.
B The product specification demanded by each customer is different.
C There are significant barriers facing potential new entrants.
D Transport costs are low relative to the value of the product.

4. M/J 15/P33/Q9
In many developed economies, large and small firms often exist side by side in the same industry.
What is most likely to explain the survival of these small firms?

A They each offer a much wider range of products.
B They have a higher minimum efficient scale.
C They pay much higher wages to their staff.
D They provide a more personal level of consumer service.

5. M/J 14/P32/Q10
What could explain why the proportion of total employment in an economy accounted for by small firms decreases?

A a trend towards the use of sub-contractors to produce specialised components
B growing technical economies of scale in manufacturing
C growth of the service sector and a decline in manufacturing
D the opening up of specialist markets as real incomes rise

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6. M/J 13/P31/Q8
What is most likely to pose a threat to the survival of small local bakeries?
A an increase in the cost per minute of television advertising
B a switch in consumer preferences to cheaper mass-produced bread
C diseconomies of scale in the process of bread production
D increased congestion on road networks

7. M/J 13/P32/Q9
Which feature of an economy would be most favourable for the survival of small firms?
A capital intensive production
B economies of scale in production
C the presence of a stock exchange
D the widespread availability of bank lending

8. O/N 13/P33/Q10
What is likely to make it more difficult for a small firm to survive?
A increased preference on the part of consumers for distinctive non-standardised products
B reductions in the rate of interest charged by commercial banks
C the absence of effective barriers to the entry of potential competitors
D the existence of decreasing returns to scale

9. O/N 06/P3/Q8
Which small firms are most likely to survive for only a relatively short period?
A those producing components for large firms
B those producing specialised products for small markets
C those engaged in activities with low start-up costs
D those engaged in activities that require flexibility in meeting customer requirements

10. O/N 03/P3/Q12
The proportion of total employment in an economy accounted for by small firms increases.
Which explanation for this is least likely to be valid?
A a trend towards the use of sub-contractors to produce specialised components
B growing technical diseconomies of scale in manufacturing
C growth of the manufacturing sector and a decline in services
D the opening up of market niches as real incomes rise

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Answers Section

1. A
Small firms have an advantage of flexibility to cope with changes in demand while large firms enjoy economies of scale.

2. B
Large firms can produce a product at lower cost due to internal economies of scale than small firms and therefore small firms can not compete them unless small firms have some exclusive edge over large firms.
Small firms usually specialize in smaller products due to limited finance where as larger firms tend to produce large and expensive products. For instance, if firm A is a large firm and produces high quality expensive cars, it might not manufacture all of the parts of the car itself. It might buy seats covers from another firm which is a small firm that specializes in seats only. Small firms are specialists of component parts and would manufacturer such products more efficiently then large firms.
Hence, if small firms are making components of the product large firms are making then both small and large firms will coexist.

3. B
Large firms can produce a product at lower cost due to internal economies of scale than small firms and therefore small firms can not compete them unless small firms have some exclusive edge over large firms.
If the product specification demanded by each customer is different, then large firm would not be able to meet the diversity in demand through customised products but small firms can.

4. D
Large firms can produce a product at lower cost due to internal economies of scale than small firms and therefore small firms can not compete them unless small firms have some exclusive edge over large firms.
Small firms can provide a more personal level of consumer service which large firms can not.

5. B
A trend towards the use of sub-contractors to produce specialized components mean smaller specialized firms would grow in numbers in the economy which would mean that small firms would start to employ a higher proportion of total employment.

Technical economies of scale in manufacturing would mean larger firms would benefit from lower average costs because of the use of specialized machines. The lower average costs would put larger firms at an advantage over smaller manufacturing firms and therefore the number of smaller firms would fall as they are no longer competitive in the market. With fewer small firms the proportion of total employment provided by small firms would fall.
There are large and small firms in both sectors so a shift from manufacturing to services sector does not explain the current trend observed in the question. “Opening up of specialist markets as real incomes rise” does not result in lower employment by small firms and therefore also is not the answer.

6. B
A switch in consumer preferences to cheaper mass-produced bread will put large firms, with economies of scale, at an advantage and therefore will most likely to pose a threat to the survival of small local bakeries.

7. D
Capital intensive production requires large amount of investment which means it would be difficult for small firms to exist as larger firms would have more capital and would have machinery which is more efficient. Economies of scale in production means as output goes up, average costs decrease. This implies that large firms would have very low average costs as compared to smaller firms, which will make it difficult for them to survive. Stock exchange exists for firms that want to sell their shares to the public and that is usually large firms with a proven track record, so this will not help small firms in surviving.
The widespread availability of bank lending will make it easier for small firms to borrow funds in order to finance their day to day activities or buy more capital, thus increasing their chances of surviving. So option D is correct.

8. C
The absence of effective barriers to the entry of potential competitors will make it easy for new firms to enter in the market and therefore will increase competition, reduce prices and profits and make the small firms more volunerable to any changes in demand and cost conditions. Eventually, it will be more difficult for a small firm to survive.

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9. C

Activities with low start-up costs will make it easy for new firms to enter in the market and therefore will increase competition, reduce prices and profits and make the small firms more vulnerable to any changes in demand and cost conditions. Eventually, it will be more difficult for a small firm to survive.

10. C

Increase, in small firms shows an increasing towards specialization. The question asks for least likely valid explanation. An increasing trend towards sub contractors shows an increase in small firms. Growing technical diseconomies of scale in manufacturing shows rising LRAC of large firms. Increasing costs may lead to closure of large firm in long run. In opening up of market niches would again mean opening of greater number of small firms.

According to growth of manufacturing sector would mean growth of large firms and a greater proportion of employment accounted by them which is coupled with a decline in service sector which means lesser proportion of employment by small firms. This is least likely valid statement for the statement in question.

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2.10 Multiple topics of chapter 2

1. M/J 14/P32/Q7

The table gives information about a firm's costs over a given range of output in the short run and in the long run.

output (thousand)	**21**	**22**	**23**	**24**	**25**
short-run average cost ($)	20	19	18	17	16
long-run average cost ($)	12	13	14	15	16

Which conclusions can be drawn about the characteristics of production over this output range in the short run and in the long run ?

	short run	**long run**
A	decreasing returns to scale	diminishing returns
B	economies of scale	diminishing returns
C	increasing returns	decreasing returns to scale
D	increasing returns	economies of scale

2. O/N 12/P32/Q10

What is most likely to be associated with a firm that is growing rapidly?

A a high rate of labour turnover

B a low level of net investment

C a low percentage of profits paid as dividends to shareholders

D attainment of the necessary conditions for allocative efficiency

3. M/J 12/P33/Q8

Samsung Electronics, which began as a semiconductor firm making simple memory chips, has used continuous research and investment to emerge as an industry leader.
In addition, it has applied its strength in semiconductors to other markets including televisions and mobile phones.
What has taken place?

A external growth and diversification

B external growth and sales revenue maximisation

C internal growth and diversification

D internal growth and sales revenue maximisation

4. O/N 01/P3

What would result in reduction in labour costs per unit of output?

A an increase in output which is greater than the increase in labour earnings

B an increase in labour productivity which is less than the increase in average earnings

C an increase in wage rates which is greater than the increase in output per worker

D an increase in average earnings which is less than the increase in employment

5. O/N 96/P3/Q18

While most steel plants in a country operate for 24 hours a day, most of its clothing firms operate for only 8 hours a day.
What partly explains this difference?

A Capital costs represent a higher proportion of total costs in steel than in clothing.

B Premium rates of pay for night shift working are higher in the clothing industry than in steel.

C There is shortage of machine operators in the clothing industry.

D There is greater excess capacity in the clothing industry than in steel.

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Answers Section

1. C
   The table shows that SRAC will decrease as output increases which will result in a downward sloping short-run average cost curve. This could be explained by increasing marginal returns. In the long-run average cost increases as output increases, so LRAC curve will be upward sloping. Average cost will tend to increase in case of decreasing returns to scale as output increases by less than inputs percentage wise.
2. C
   A firm's labour turnover rate depends on factors such as wages, working condition etc. the firm cannot grow without investing so it must be investing large amounts in order to grow. The firm must be paying a low percentage of profits to shareholders because it would be using the bulk of profits to reinvest into the businesses in order finance its growth. The firm does necessarily have to meet allocative efficiency conditions in order to grow.
3. C
   Samsung Electronics has not merged with any other firm, therefore, there isnt any external growth. As it extended its operations from semiconductors to other markets including televisions and mobile phones, and, therefore is diversifying.
4. A
   Labour costs per unit of output are calculated by dividing total labour cost by total output by given number of workers. For reduction in labour costs per unit of output, the output must increase in greater proportion as compared to total labour costs or earnings.
5. A
   The overheads are high in steel industry. Therefore a steel mill runs 24 hours a day to spread the fixed cost over a larger volume of output.

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Unit 3 Rules of firms behaviour

3.1 Profit maximization (MR=MC) rule

1. M/J 15/P33/Q12

The table shows a firm's average variable cost of producing different levels of output. There are no fixed costs.

units of output	1	2	3	4	5	6	7
Average variable cost ($)	22	18	15	13	14	16	18

If the market price were $18, within what range of output would a profit-maximising firm in a perfectly competitive industry produce in the short-run?

A 1 – 2 units **B** 3 – 4 units **C** 4 –5 units **D** 6 –7 units

2. O/N 12/P33/Q10

The table shows a firm's total costs corresponding to different levels of output.

units of output	1	2	3	4	5	6	7	8
total cost ($)	8	14	18	22	28	36	46	58

If the market price is $8, within which range of output would a profit maximising firm in a perfectly competitive industry produce in the short run?

A 1 - 2 units **B** 3 - 4 units **C** 5 - 6 units **D** 7 - 8 units

3. O/N 14/P33/Q10

The table shows the total revenue and marginal cost of a firm at different levels of production.

production (tonnes)	total revenue ($)	marginal cost ($)
2	100	10
3	130	15
4	160	20
5	190	25
6	220	30
7	250	40

Given the firm wishes to maximise its profits, what is the highest output the firm will produce?

A 3 tonnes **B** 4 tonnes **C** 5 tonnes **D** 6 tonnes

4. M/J 12/P33/Q12

The table shows the total revenue and marginal cost of a firm at different levels of production.

production (tonnes)	total revenue ($)	marginal cost ($)
2	100	5
3	120	10
4	140	15
5	160	20
6	180	25
7	200	30

Within which output range will the firm's profits be maximised?

A 2-3 tonnes **B** 3-4 tonnes **C** 4-5 tonnes **D** 5-6 tonnes

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5. M/J 90/P3

The table shows the total revenue and marginal cost of a firm at different levels of production.

production (tonnes)	total revenue (£)	marginal cost (£)
2	100	10
3	120	15
4	140	20
5	160	25
6	180	30
7	200	40

Within which of the following output ranges will the firm's profits be maximized?

A 2 – 3 tonnes **B** 3 – 4 tonnes **C** 4 – 5 tonnes **D** 5 – 6 tonnes

6. M/J 90/P3

The table shows the total costs of a perfectly competitive firm at different levels of output.

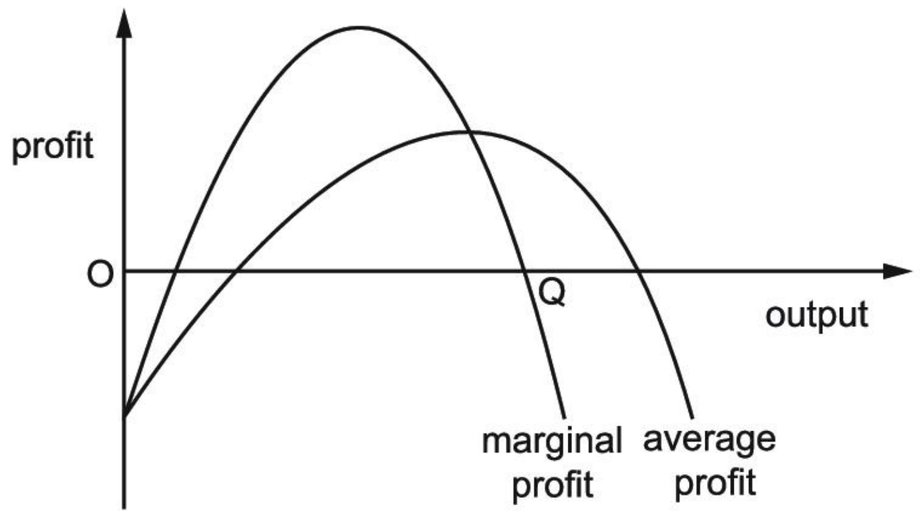
output (units)	0	10	20	30	40	50
total cost (£)	30	50	70	95	125	170

When average revenue is £4, which of these levels of output is the most profitable?

A 10 **B** 20 **C** 30 **D** 40

7. O/N 14/P3/Q13

The diagram shows how a firm's average profit and marginal profit vary at differing levels of output.



If the firm produces output OQ, which statement is correct?

A The firm is earning a zero profit.
B The firm is making a normal profit.
C The firm is maximising its profit.
D The firm is producing above its profit-maximising output.

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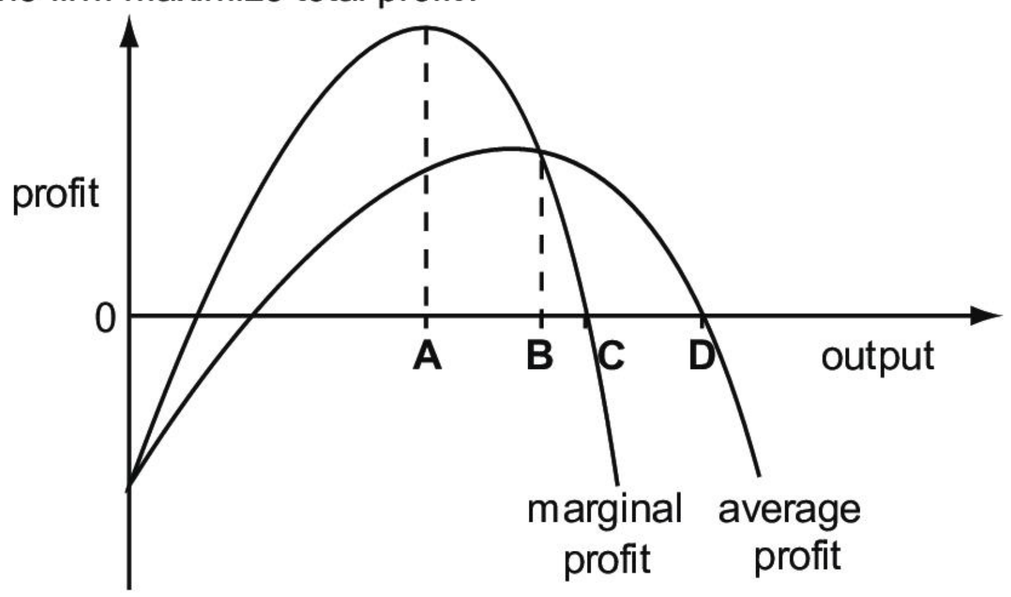
8. M/J 96,O/N 03/P3/Q15

The diagram shows how a firm's average profit and marginal profit vary at differing levels of output.
At which level of output does the firm maximize total profit?



9. M/J 04/P3/Q12

A perfectly competitive firm is producing 2000 boxes of biscuits per week, which it sells for $2.50 per box. The table shows the firm's costs.

total fixed cost	$2000
total variable cost	$4000
marginal cost	$2.50

In the short run, what should the firm do to maximise its profits or minimise its losses?

A cease production altogether
B increase its output
C lower its price
D maintain its output at the present level

10. M/J 03/P3/Q13

A firm produces both X and Y in fixed proportions. A permanent increase in demand for X occurs. The entrepreneur will increase output of X as long as

A the addition to revenue in the X and Y markets combined is greater than the addition to costs.
B the cost of producing more X is offset by a decrease in the cost of producing Y.
C the marginal cost of X is less than the marginal cost of Y.
D there is a fall in average costs of production.

11. M/J 01/P3

A firm is producing a level of output where its marginal cost is equal to its marginal revenue. What must this mean?

A Any other output would mean a lower profit or a higher loss.
B The firm is operating in a perfectly competitive market.
C Normal profit is being earned.
D Total revenue is being maximised.

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Answers Section

1. C

Total profit is maximized where MR = MC

In perfect competition P=MR=AR, therefore MR=$18. MC can be calculated by following table:

Q	1	2	3	4	5	6	7
AVC	22	18	15	13	14	16	18
VC=AVCxQ	22	18x2=36	15x3=45	13x4=52	14x5=70	16x6=96	18x7=126
MC=rVC	22	14	9	7	18	16	30
P=MR	18	18	18	18	18	18	18

Hence total profit is maximised where MC is $18 and it is for output 4-5 tonnes.

2. C

Total profit is maximized where MR = MC

In perfect competition P=MR=AR, therefore MR=$8. MC can be calculated by following table:

Q	1	2	3	4	5	6	7
TC	8	14	18	22	28	36	46
MC=rTC/rQ	8	6	4	4	6	8	10
P=MR	8	8	8	8	8	8	8

Hence total profit is maximised where MC is $8 and it is for output 5-6 tonnes.

3. D

According to profit maximizing rule, profit is maximized where MR = MC. The calculation for MR and MC is shown in table below.

Production (tonnes)	Total Revenue ($)	MC ($)	MR ($)
2	100	10	-
3	130	15	130-100 = 30
4	160	20	160-130 = 30
5	190	25	190-160 = 30
6	220	30	220-190 = 30
7	250	40	250-220 = 30

According to table, profit will be maximized between interval 4 to 5 tonnes where MR = MC = $ 30

4. C

According to profit maximizing rule, profit is maximized where MR = MC. The calculation for MR and MC is shown in table below.

Production (tonnes)	Total Revenue ($)	MC ($)	MR ($)
2	100	5	-
3	120	10	120-100 = 20
4	140	15	140-120 = 20
5	160	20	160-140 = 20
6	180	25	180-160 = 20
7	200	30	200-180 = 20

According to table, profit will be maximized between interval 4 to 5 tonnes where MR = MC = $ 20

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5. B

According to profit maximizing rule, profit is maximized where MR = MC. The calculation for MR and MC is shown in table below.

Production (tonnes)	Total Revenue (£)	MC (£)	MR (£)
2	100	10	-
3	120	15	120-100 = 20
4	140	20	140-120 = 20
5	160	25	160-140 = 20
6	180	30	180-160 = 20
7	200	40	200-180 = 20

According to table, profit will be maximized between interval 3 to 4 tonnes where MR = MC = £ 20

6. D

Profit is maximised where MR = MC. As long as MR>MC, firm will increase its output and if MR<MC, firm will reduce its output to maximise its total profit. In perfect competition P=MR=AR, therefore MR=£4. MC calculated by following table.

Output (units)	0	10	20	30	40	50
Total Cost (£)	30	50	70	95	125	170
$MC = \frac{\Delta TC}{\Delta Q}$	-	$\frac{50-30}{10-0} = 2$	2	2.5	3	4.5
AR (£)=P=MR	4	4	4	4	4	4

As MR > MC upto 40 units of output and beyond that MR<MC, therefore 40 units is most profitable output.

7. C

Total profit is maximized where MR = MC
As Marginal Profit = MR-MC
At total profit maximization point MR = MC, which also means MR-MC = 0 , therefore marginal profit = 0 and this is shown in option C.

8. C

Total profit is maximized where MR = MC
As Marginal Profit = MR-MC
At total profit maximization point MR = MC, which also means MR-MC = 0 , therefore marginal profit = 0 and this is shown in option C.

9. D

The revenues and costs for the perfectly competitive firm are shown below

Price (Marginal Revenue)	$ 2.50
Marginal Cost	$ 2.50
Total fixed costs	$ 2000
Total variable costs	$ 4000

In perfect competition, price is equal to marginal revenue. In order to maximize profits, a firm needs to equal its marginal revenues and marginal costs. As the marginal revenue is equal to marginal costs, as seen through table, the firm needs to maintain its current output.

10. A

Initially, the firm produced X and Y in fixed proportion. This shows that profit is maximized as marginal revenue of X and Y market combined is equal to marginal cost of X and Y combined, i.e.,

$$MC^{X+Y} = MR^{X+Y}$$

With the increase in demand of X, the output of X can be increased only if the marginal revenue of X and Y combined is greater than their marginal cost, i.e., according to profit maximization rule,

$$MR^{X+Y} > MC^{X+Y}$$

11. A

A firm is producing that level of output where its marginal revenue is equal to marginal cost. Therefore it is maximizing its profits. Producing at any other output will lead to a reduction in profit or increasing losses.

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3.2 Shut down rule

1. M/J 15/P32/Q13

The table shows information about a profit-maximising firm.

price per unit	$1.70
fixed costs	$10 000
variable costs per unit	$1.75

What can be concluded about the firm's behaviour?

A It should close down immediately because it is not covering its average costs.

B It should close down immediately because it is not covering its variable costs.

C It should continue production in the long-run because it is covering its total costs.

D It should continue production in the short-run because it is covering its fixed costs.

2. M/J 91,M/J 10/P3/Q10

The table shows information about a profit-maximizing firm.

output	17 000 units
price per unit	£1.75
fixed costs	£10 000
variable costs per unit	£1.70

What should the firm do?

A Close down immediately because it is not covering its fixed costs.

B Close down immediately because it is

C Close down immediately because it is not covering its total costs.

D Continue production in the short run because it is covering its variable costs.

3. O/N 90,M/J 00

The table shows the total costs of a perfectly competitive firm producing goods X.

units of X produced	total cost($)
1	200
2	280
3	340
4	460
5	600

If fixed costs are $100, what is the minimum price required for the firm to continue to produce in the short run?

A $60 **B** $80 **C** $100 **D** $113.33

4. Dec. 80,M/J 99/P3

As a result of a fall in demand for a product, the price, received by a firm falls from £10 to £8. Its output and costs are then as follows:

output/sales	100 units per week
total fixed costs	£500 per week
total variable cost	£400 per week
total costs	£900 per week

What will the firm now do?

A close immediately.

B close when its fixed assets need replacing.

C continue to operate until its stocks of raw materials are used up.

D continue to produce in the long run.

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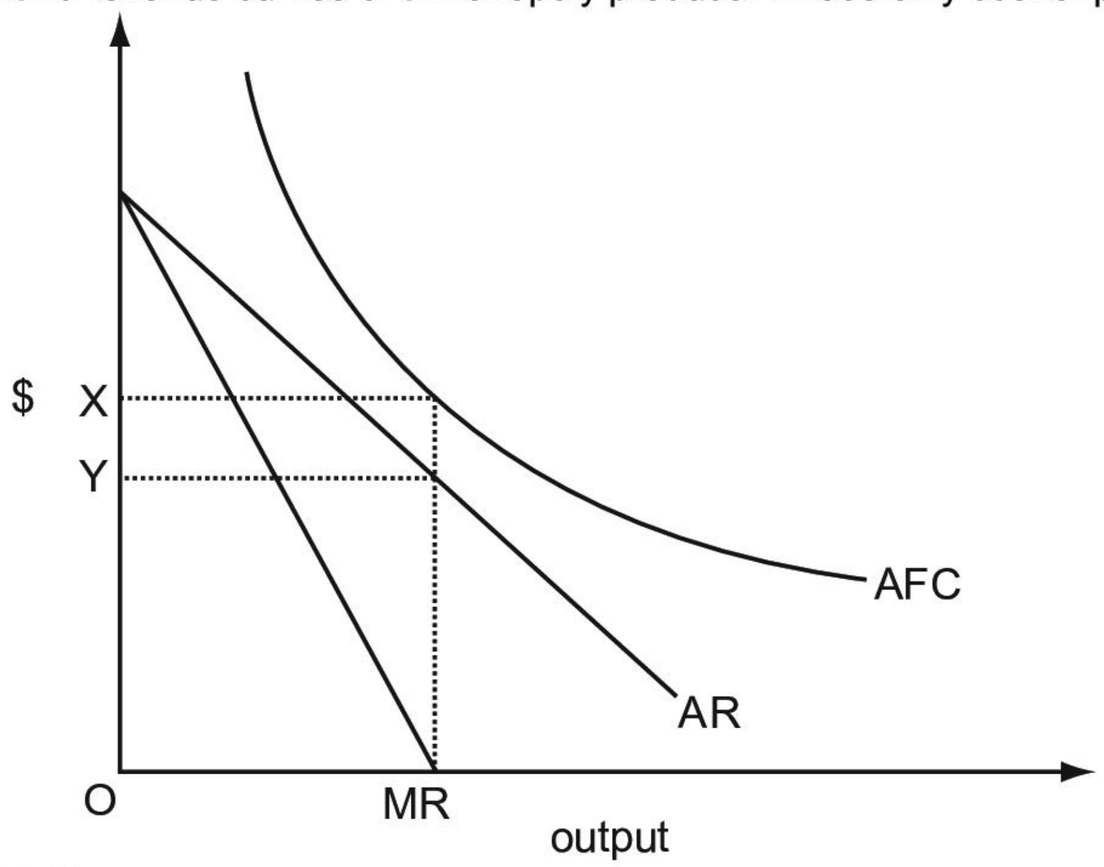
5. O/N 09/P3/Q12

The diagram shows the cost and revenue curves of a monopoly producer whose only cost of production is a fixed cost.



What will such a monopolist do?

A set a price of OX in the short run and the long run

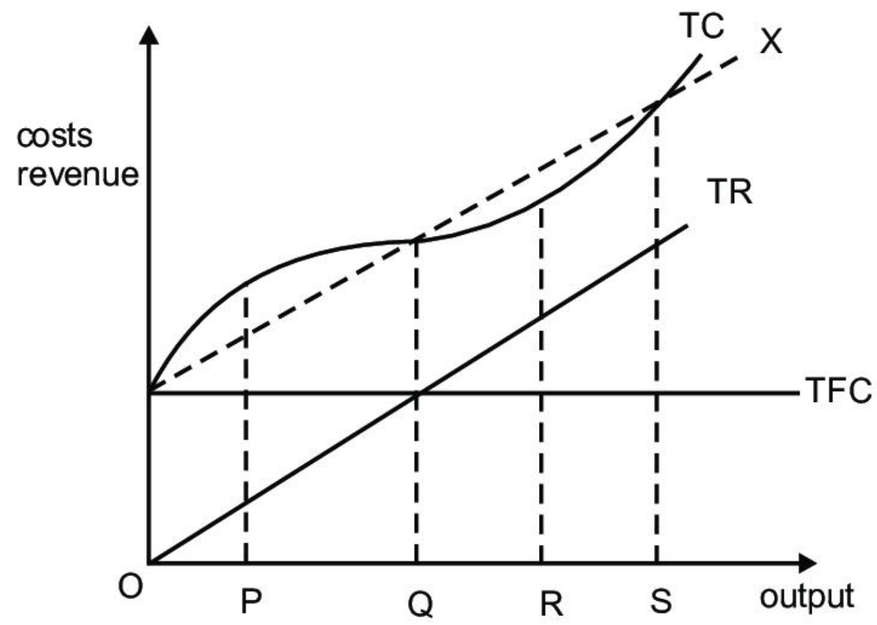
B set a price of OY in the short run and the long run

C set a price of OX in the short run, but discontinue production in the long run

D set a price of OY in the short run, but discontinue production in the long run

6. O/N 00/P3/Q9

The diagram shows the short-run total cost (TC) total fixed cost (TFC) and total revenue (TR) curves of a perfectly competitive firm.



Which output range contains all of the output levels that the firm will regard as preferable to ceasing production?

A OP **B** PQ **C** QS **D** RS

7. M/J 09/P3/Q12

In which circumstance will a firm cease production in the short run?

A It makes a profit that is less than its total variable costs.

B It makes a profit that is less than its total fixed costs.

C Its average revenue is less than its average cost.

D Its average revenue is less than its average variable cost.

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8. O/N 94/P3

In which of the following circumstances will a firm cease production in the short-run?

A It makes a profit which is less than its total variable costs.

B It makes a profit which is less than its total fixed costs.

C Its average revenue is less than its average cost.

D Its average revenue is less than its average variable cost.

9. O/N 90/P3

In the short-run, a profit maximizing firm will produce the output at which marginal revenue equals short-run marginal cost provided that.

A average revenue exceeds average fixed cost.

B average revenue exceeds average variable cost.

C average revenue exceeds marginal revenue.

D average total cost exceeds average revenue.

10. O/N 03/P3/Q16

When will a firm in a perfectly competitive industry cease to produce in the short run?

A if it earns less than normal profits

B if total revenue is less than the total cost of production

C if marginal revenue is less than the average total cost of production

D if total revenue is less than the total variable cost of production

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Answers Section

1. B
According to the table, a profit maximizing firm should close down immediately, because its average revenue, i.e., price ($1.70) is greater than average variable cost ($1.75) which is in accordance with shut down rule.

2. D
According to the table, a profit maximizing firm should continue to operate in short run, because its average revenue, i.e., price (£1.75) is greater than average variable cost (£1.70) which is in accordance with shut down rule.

3. B
The minimum price to continue in short run is that price (P=AR) which is equal to average variable cost. The table below shows how to calculate AVC.

Q	Total Cost ($)	Fixed Cost ($)	Variable Cost TC = FC ($)	AVC = $\frac{VC}{Q}$
1	200	100	100	100
2	280	100	180	90
3	340	100	240	80
4	460	100	360	90
5	600	100	500	100

As the minimum AVC is $80 therefore minimum price to continue in short run is equal to $80.

4. B
By using Shut Down and Exit Rule the firm can decide its short run and long run decision. The table below can help the firm makes its decision can help the firm make its decision.

Price = Average Revenue (AR)	8
Average Fixed Cost	$\frac{500}{100} = 5$
Average Variable Cost	$\frac{400}{100} = 4$
Average Total Cost	$\frac{900}{100} = 9$

According to the table, marginal revenue is lesser than average total cost which means firm, will close in long run. The long run is the time period when firm's assets will need to be replaced. In short run, the firm will continue to operate because its average revenue (AR) is greater than average variable cost (AVC). The decision of operation is unaffected by stocks of raw materials because this cost is included in total costs of firm.

5. D
As only cost of the firm is fixed cost, therefore both MC & AVC will be zero. In order to set a price firm will equate its MR with MC and it will be a point where MR = 0. According to the diagram, OY will be the price at this point.
In short run, as AVC = 0, firm will continue to produce as AR > 0 at price OY. However, the firm will discontinue in long run because average revenue is less than average total cost which is average fixed cost in this case.

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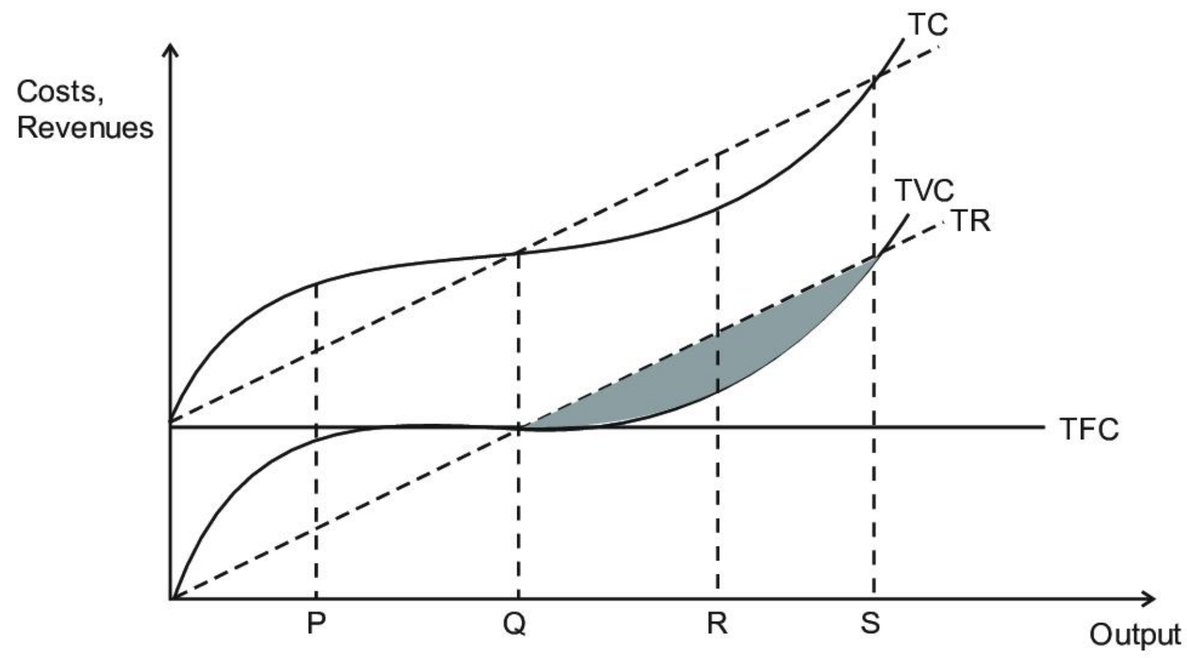
6. C

According to diagram, total revenue is lesser than total cost and firm will close in long run. However in short run, the firm will continue to operate if total revenue is greater than total variable cost. This can be shown in diagram.



The total variable cost curve is shown in diagram. According to diagram TVC is lesser than TR between QS as shown by shaded area and firm will regard it as preferable to cease production in this output range.

7. D

Whenever a firm's average revenue will become lesser than average variable cost it will be preferable to cease production in short run.

8. D

The firm will follow shut down and exit rule in order to decide its continuity in short run. If the firm earns average revenue that is lesser than average variable cost then the firm will cease production in short run.

9. B

In short run, a firm will continue to operate as long as its average revenue is greater than or equal to average variable cost which is in accordance with shut down rule.

10. D

According to shut down rule, when the price or average revenue becomes lesser than average cost, this will force the firm to shut down in short run.

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3.3 Multiple topics of chapter 3

1. **M/J 16/P33/Q5, Dec. 88,M/J 92/P32**
   If a firm is making normal profit, it must true that
   A average cost equals average revenue.
   B average cost equals marginal revenue.
   C marginal cost equals average cost.
   D marginal cost equals average revenue.

2. **M/J 13/P33/Q11,M/J 13/P31/Q11, M/J 98,M/J 02,M/J 07/P32/Q10**
   A firm earns supernormal profit when its profit is
   A above that earned by competing firms.
   B above that needed to cover its fixed costs.
   C above that needed to keep the firm in production in the short run.
   D above that required to keep its resources in their present use in the long run.

3. **O/N 98/P32/Q15**
   A farmer can produce both wheat and barley at constant costs of production. The opportunity cost of a kilo of wheat is 1.5 kilos of barley. The price of a kilo of wheat is twice that of barley.
   What should the farmer do to maximize profits?
   A concentrate on barley production.
   B concentrate on wheat production.
   C produce wheat and barley in the ratio 2:1.
   D produce wheat and barley in the ratio 3:2.

Answers Section

1. A
   As per definition: Normal profit is earned when average revenue equals average cost.

2. D
   Supernormal profit is earned when AR is greater than AC. If a firm earns supernormal profit, then it will continue to operate both in short run and long run. A supernormal profit does not relate to profits of competitive firms or fixed costs.

3. B
   According to statement,

Let Quantity of wheat	= 1 kg	Quantity of barley	= 1.5 kg
Price of wheat	= 2 *x*	Price of barley	= *x*
Total Revenue	= P^wQ^w	Total Revenue	= $P_b Q_b$
	= 2x x 1		= x × 1.5
	= 2 x		= 1.5 x

   As total revenue from wheat is greater than barley, in order to maximize profits the farmer should produce more of wheat and lesser of barley. Therefore it should concentrate on wheat production.

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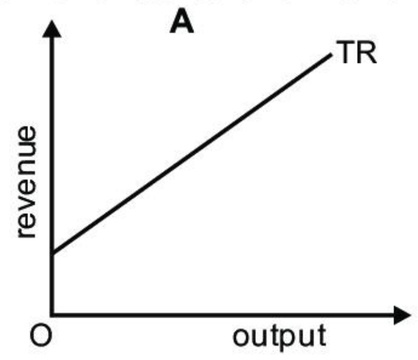
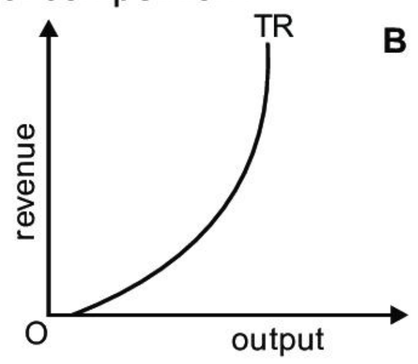
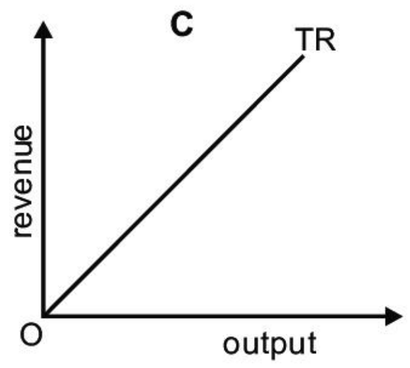
Unit 4 Perfect competition

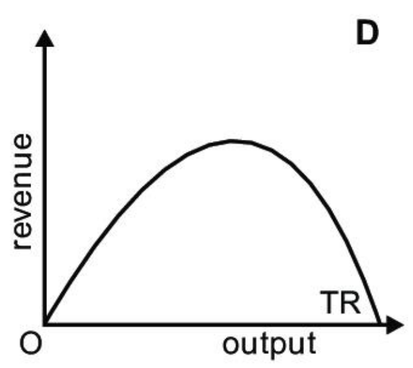
4.1 Short-run price and output determination

1. M/J 82,O/N 98,M/J 99/P3/Q13
Which diagram shows the total revenue function for a firm in perfect competition?









2. O/N 17/P33/Q10, M/J 12/P32/Q12, M/J 12/P31/Q12
A perfectly competitive firm is currently producing at a level of output where its marginal cost is above both its average total cost and the market price.
What will be the effect on price and output if the firm were to maximise its profit?

	effect on output	effect on price
A	decrease	increase
B	decrease	unchanged
C	increase	decrease
D	increase	unchanged

3. O/N 04/P3/Q13
A perfectly competitive firm is currently producing at a level of output where its marginal cost is above its average total cost but below the market price.
What would be the effect on price and output if the firm were to maximise its profit?

	effect on output	effect on price
A	decrease	increase
B	decrease	unchanged
C	increase	decrease
D	increase	unchanged

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4. O/N 96/P3/Q16

A perfectly competitive firm is currently producing at a level of output where its marginal cost is increasing and is above the market price.
What would be the effect on price and output if the firm were to maximize its profit?

	effect on output	effect on price
A	decrease	increase
B	decrease	unchanged
C	increase	decrease
D	increase	unchanged

5. M/J 06/P3/Q9

A firm in perfect competition currently sells 100 units at $5 each.
What will be the revenue obtained by the firm if it increases its price to $6?

A zero **B** $100 **C** $500 **D** $600

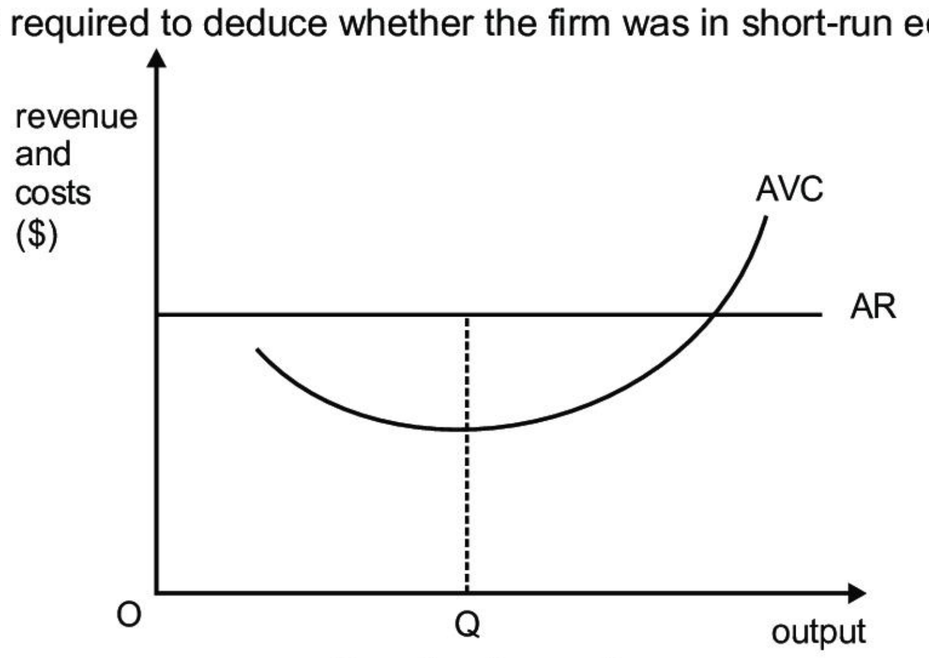
6. O/N 02/P3/Q9

If a profit-maximising company believes that the market price of a good will not be affected by its own output, it will

A produce until marginal cost equals price.
B produce until average cost equals price.
C produce until marginal revenue is zero.
D sell as much as it can produce.

7. O/N 90/P3

The diagram shows some of a firm's cost and revenue curves.
What other, information would be required to deduce whether the firm was in short-run equilibrium at an output of OQ?



A the average fixed cost curve.
B the average total cost curve.
C the demand curve.
D the marginal cost curve.

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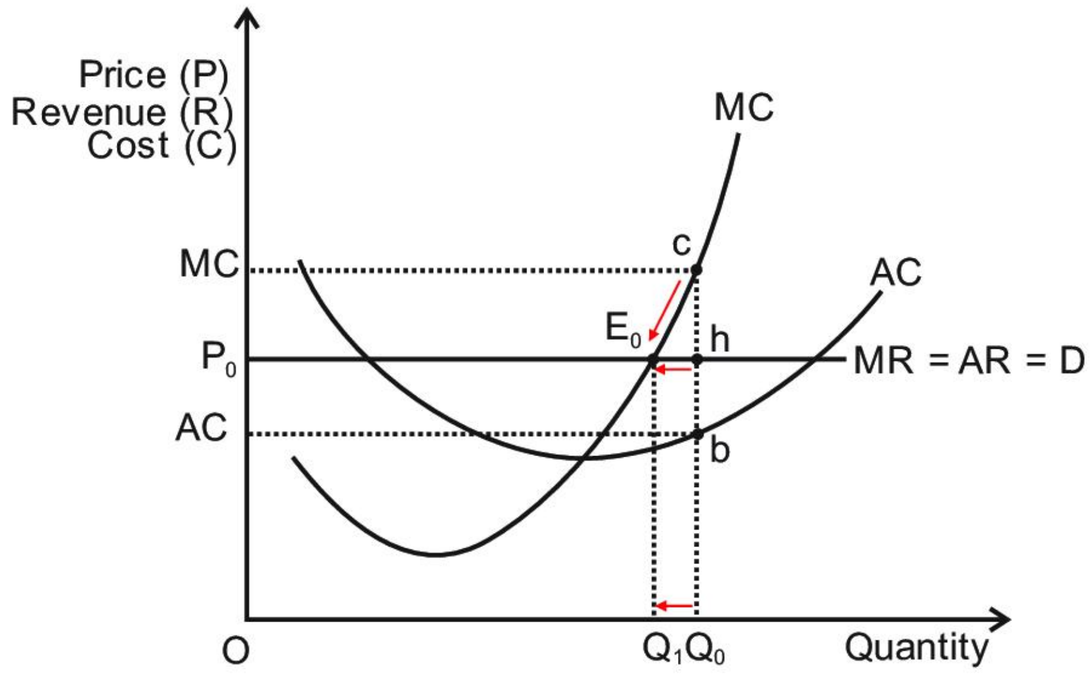
Answers Section

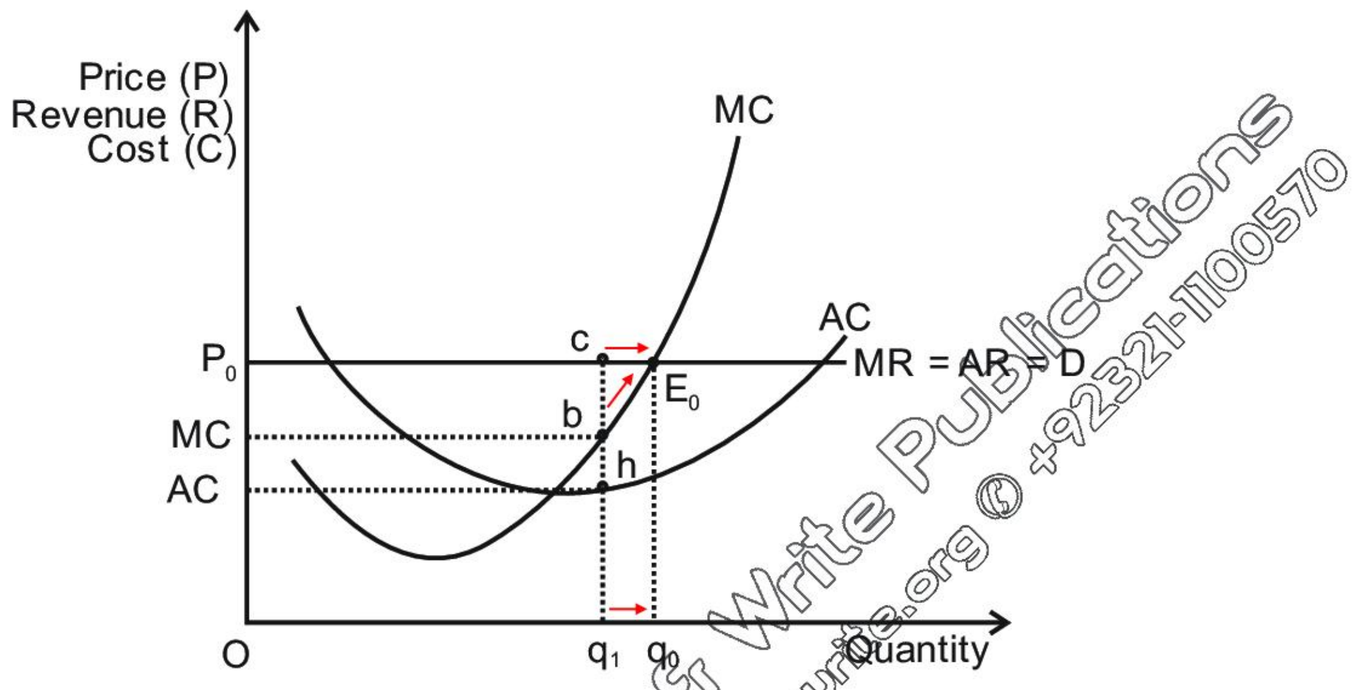
1. C
In perfect competition the total revenue curve is a straight line from origin because of assumption of price taker. Therefore option C is the right choice.

2. B
This can be explained through diagram below.



The current output of firm is Q_0 where MC is greater than AC and market price (P_o). According to profit maximization rule the firm is currently under dis-equilibrium. At Q_0 the marginal revenue is lesser than marginal cost . Therefore the firm will decrease to quantity to until its marginal revenue equals marginal cost which is shown by E_o. At this level, the output decreases to Q_1. However, the price is uncharged because the perfectly competitive firm is price taker and cannot charge its price on its own.

3. D
This can be explained through diagram below.



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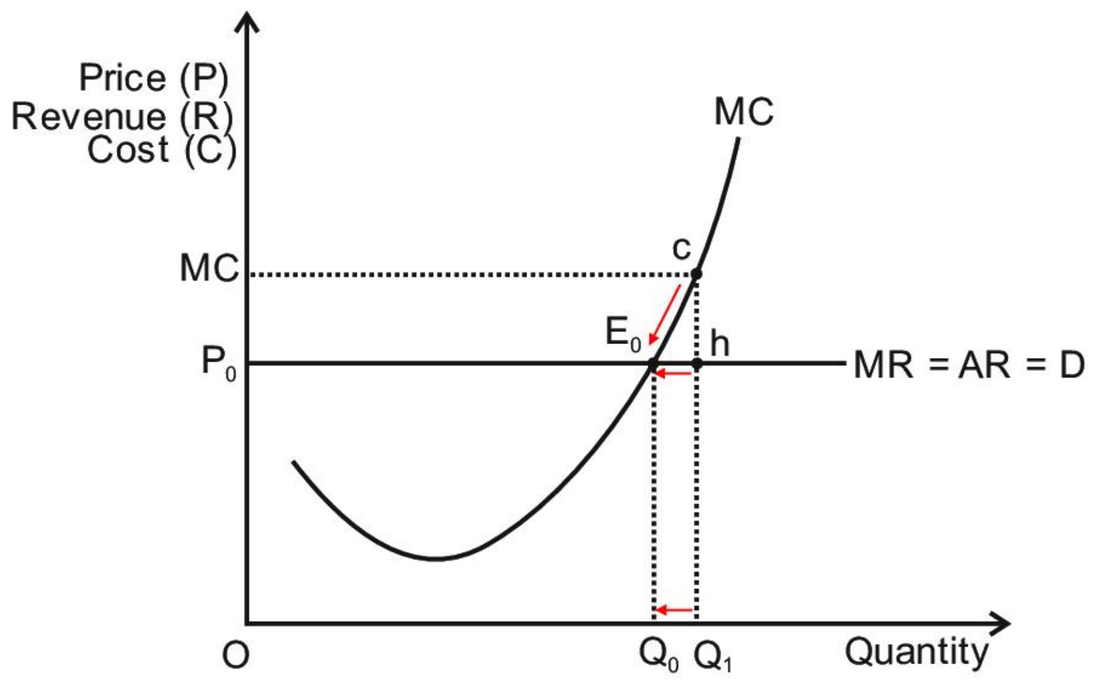
The current output of firm is q_1 where MC is greater than AC but lesser than market price (P_o). According to profit maximization rule the firm is currently under dis-equilibrium. At q_1 the marginal revenue is greater than marginal cost as specified by AC. Therefore the firm will increase to quantity to until its marginal revenue equals marginal cost which is shown by E_o. At this level, the output increases to q_o. However, the price is uncharged because the perfectly competitive firm is price taker and cannot charge its price on its own.

4. B

This effect can be shown in following diagram



The equilibrium condition for a firm is shown by a price of P_0 and quantity Q_0. As the firm is producing above market price, therefore the quantity currently produced by the firm is shown by Q_1. As the firm is perfectly competitive, it cannot change its price being price taker. It will continue to charge P_0.

As MC is greater than MR, the firm will decrease its quantity of output unless MR=MC at Q_0 Hence the firm will need to decrease its output whereas effect on its price is unchanged.

5. A

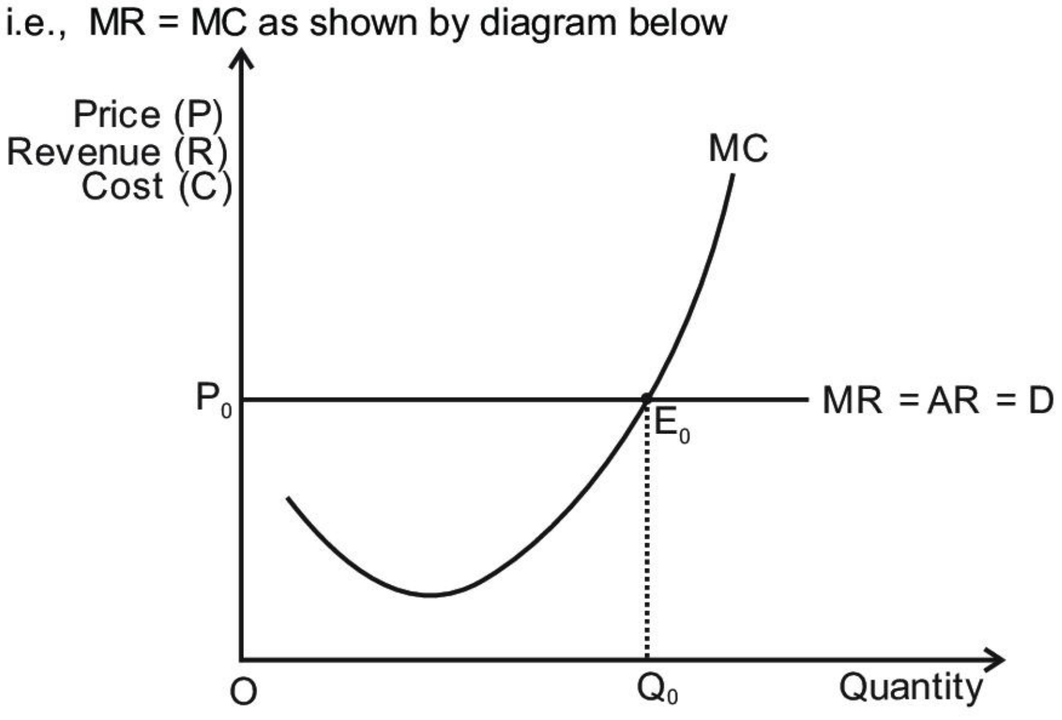
In perfect competition, all firms are price takers. Therefore, each firm will be accept a price set according to demand and supply of market. If an individual firm raises its price which is different from market price, then the firm will not be able to sell any of its product in perfect competition and earn zero revenue.

6. A

If the market price of a good is unaffected by firm's output, this means the firm is price taker. In order to maximize its profits it will set a price where

P = MR = AR = MC.

i.e., MR = MC as shown by diagram below



7. D

According to Profit Maximizing Rule, a profit maximizing firm will maximize profits and establish equilibrium where MR = MC and MC is at its rising part.

According to diagram, in order to establish equilibrium at OQ in short run MR should equal MC. The AR curve which is also MR curve, should intersect MC curve at OQ level of output. Hence 'MC' is required in this case.

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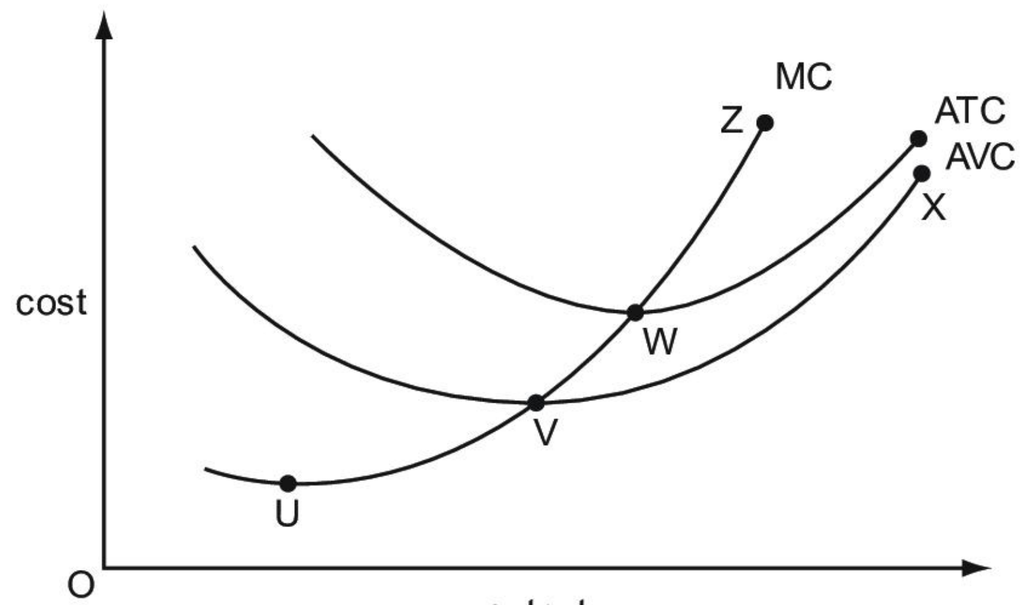
4.2 Perfect competition-short-run supply curve of a firm

1. M/J 12/P32/Q11, O/N 95/P3
The diagram shows the cost curves of a firm in a perfectly competitive market.



Which segment of a curve shows the quantity that the firm would be willing to supply to the market in the short-run?
A VX **B** UZ **C** VZ **D** WZ

2. M/J 98/P3
What would explain an upward sloping long-run supply curve for a perfectly competitive industry?
A an increase in the price of factor inputs as the industry's output expands.
B the existence of barriers to entry.
C the existence of external economics of scale.
D the law of diminishing returns.

3. M/J 90/P3
Which of the following represents the short-run supply curve on a profit maximizing firm selling in a perfectly competitive market?
A the marginal cost curve above minimum average total cost.
B the marginal cost curve above minimum average variable cost.
C the average variable cost curve above minimum marginal cost.
D the average total cost curve above minimum marginal cost.

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Answers Section

1. C
In short run, the firm will continue to operate as long as its average revenue is greater or equal to average variable cost. Therefore the firm will set a price which is equal to or greater than AVC. According to diagram, the short run supply curve will therefore be the marginal cost curve starting from point V and continuing up-to point Z.

2. A
LRAC upward trend is explained through rising prices of factor inputs as industry's output increases.

3. B
The firm can supply at any quantity with a given price in the market. The firm will start supplying when price is greater than or equal to average variable cost, which is also called the shut down point. The supply curve of a perfectly competitive firm is the rising portion of the marginal cost curve above the average variable cost or the shut down point.

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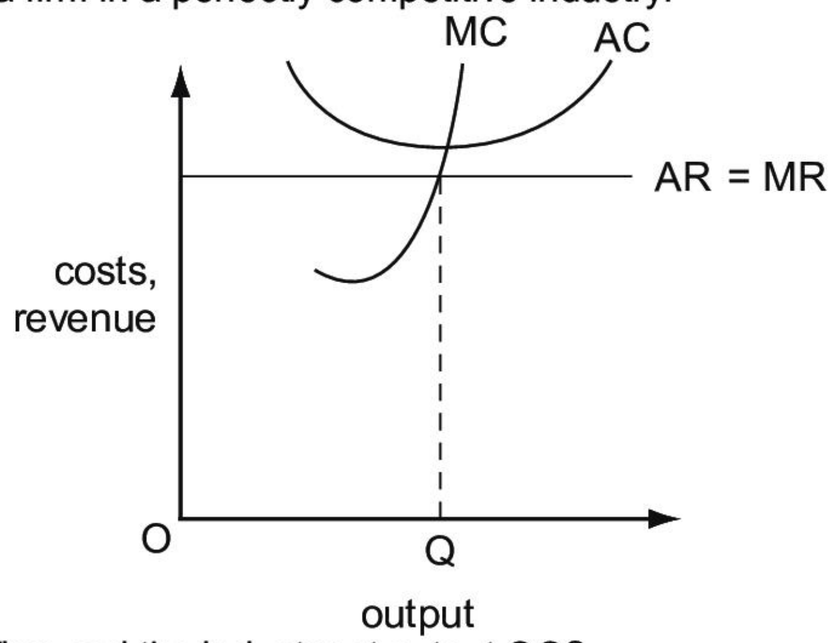
4.3 Multiple topics of chapter 4

1. O/N 05/P3/Q11

The diagram shows the position of a firm in a perfectly competitive industry.



What describes the position of the firm and the industry at output OQ?

	firm	industry
A	disequilibrium	disequilibrium
B	disequilibrium	equilibrium
C	equilibrium	disequilibrium
D	equilibrium	equilibrium

2. O/N 02/P3/Q1

New technology makes it possible to produce more of a good at every given price.
What effect will this have on equilibrium price and output in a competitive industry?

	price	output
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

3. M/J 00/P3

The table refers to a perfectly competitive industry during two successive periods.

Period	price (£)	output (millions)
1	60	1.2
2	68	1.5

Which change might explain the data?

A a decrease in the cost of raw materials.
B a decrease in the prices of a substitute good.
C an increase in consumer incomes.
D an increase in labour productivity.

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4. O/N 99/P3

What is a characteristic of a firm in a perfectly competitive industry that must apply when the industry is in long-run equilibrium, but need not apply in the short-run?

A Average cost is equal to average revenue.

B Marginal cost is equal to marginal revenue.

C Price is equal to marginal cost.

D Price is greater than average cost

5. M/J 94/P3

In a perfectly competitive industry, what happens when an indirect tax is imposed?

A Only the demand curve shifts to the left.

B Only the supply curve shifts to the left.

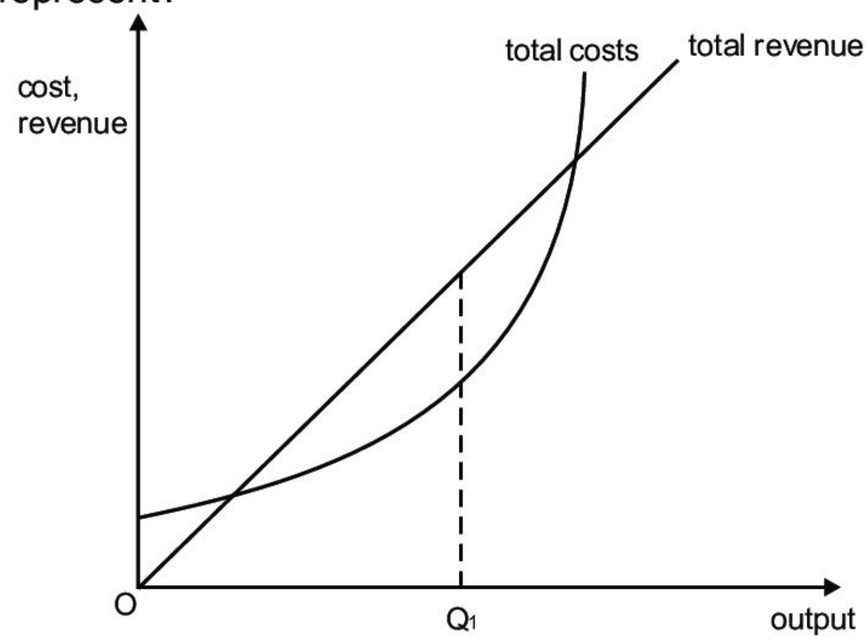
C Only the supply curve shifts to the right.

D Both the supply and demand curves shift to the left.

6. M/J 93/P3

The diagram shows the total revenue and total costs of a firm which produces an output of OQ_1.

Which situation does the diagram represent?



A imperfect competition in the short run.

B monopoly in the long run.

C perfect competition in the long run.

D perfect competition in the short run.

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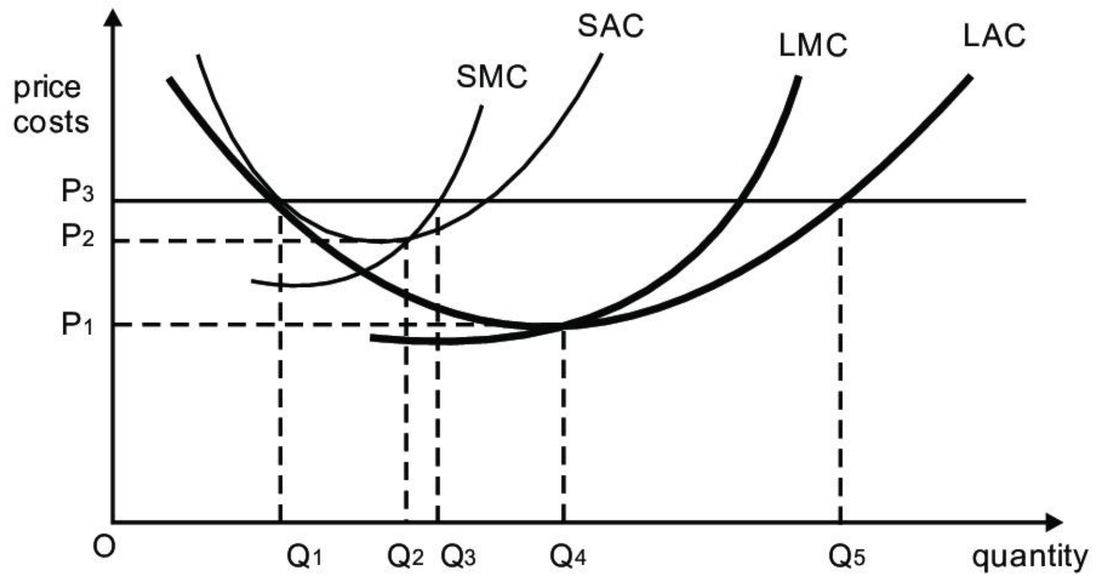
7. O/N 92/P3

The diagram represents the initial demand curve and the short-run cost curve of a firm operating in a perfectly competitive industry. Both existing and potential firms have identical costs.



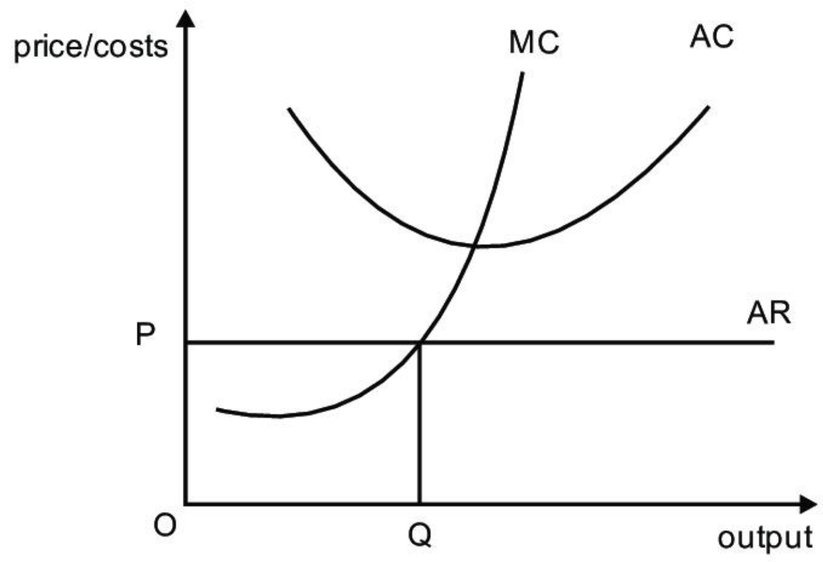
What will be the long-run equilibrium price and the output produced by each firm?

	price	output
A	OP_1	OQ_4
B	OP_2	OQ_2
C	OP_3	OQ_1
D	OP_3	OQ_3

8. M/J 91/P3, M/J 84

The diagram shows the short-run cost and revenue curves of a firm in perfect competition. The firm's output is OQ and the market price is OP.

Which of the following must take place to achieve long-run market equilibrium in the industry?



A Some firms must leave the industry.
B More firms must enter the industry.
C New entrants must charge a higher price.
D Existing firms need to increase demand by lowering their prices.

9. O/N 11/P33/Q7

What is **not** one of the roles prices play in a perfectly competitive market economy?

A to provide a rationing mechanism for allocating goods between consumers
B to provide incentives to producers to respond to changes in consumer demands
C to provide information to consumers about the quality of different products
D to provide information to producers about changes in consumer preferences

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10. M/J 98/P32

In perfect competition, what is the value of the cross-elasticity of demand for good produce by one firm with respect to changes in the prices of the goods produced by the other firms in the market?

A between 0 and 1

B 1

C above 1 but less than infinity.

D infinity

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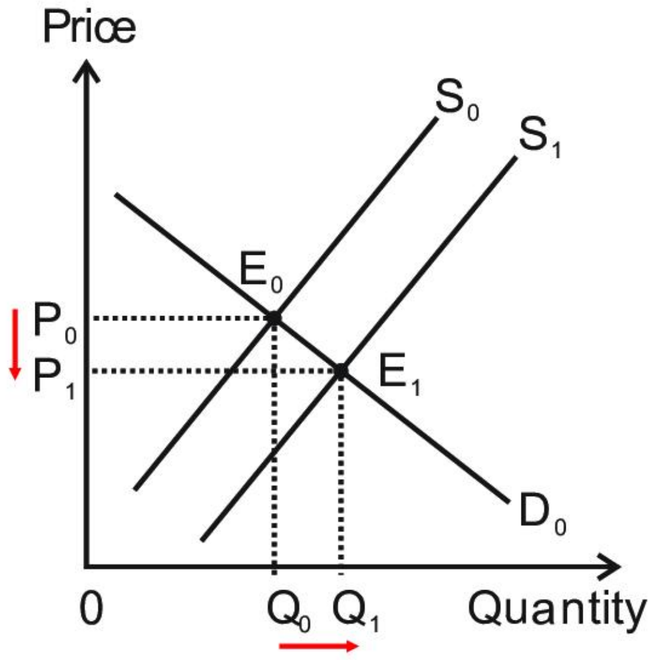
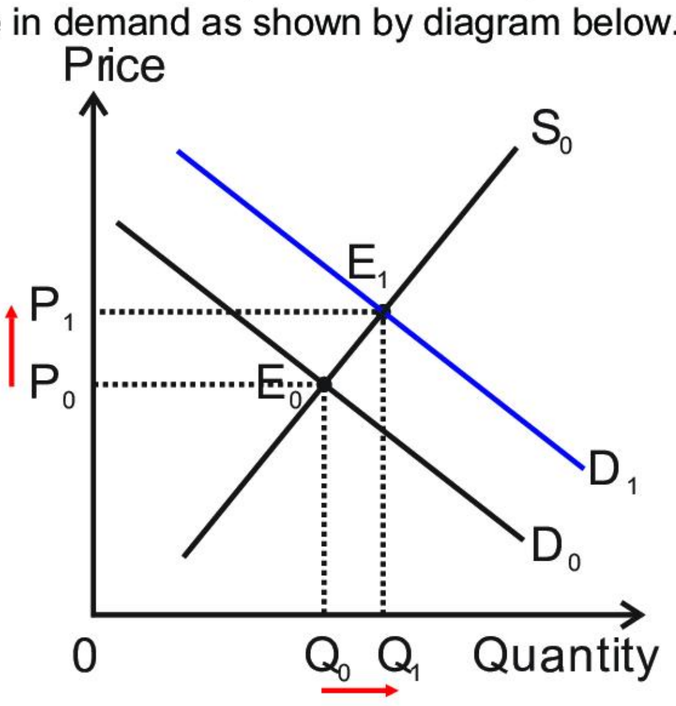
Answers Section

1. C
At OQ, MR = MC and the firm is in equilibrium according to profit maximization rule. However, the firm is in loss at this output because AC is greater than AR. This will force some firms to exit the industry and hence decrease supply. Therefore the industry is in disequilibrium.

2. B
The presence of new technology will increase the supply of the industry. This will lead to increase in quantity and decrease in price as shown below:



3. C
The price and output have both increased in the industry. This can be represented by the demand and supply curve. The only possibility of such an increase is rise in demand as shown by diagram below.



4. A
In long run, all perfectly competitive firms will earn normal profits. Hence the average cost will be equal to average revenue. However, in short run firms can earn different types of profits, i.e., normal, supernormal or loss.

5. B
The imposition of indirect tax will decrease the supply and shift the supply curve to the left.

6. D
The diagram shows total revenue and total costs for a firm. The total revenue curve is a straight line from origin which means it is a perfectly competitive industry. At OQ_1 total revenue is greater than total costs which shows firm is earning abnormal profits. The perfectly competitive firm can earn abnormal profits in short run only. In a long run the firm can only earn normal profit where total revenue is equal to total costs.

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7. A

As question requires long run therefore there is no relevance of SAC and SMC.
In long run, all perfectly competition firms of the industry will earn normal profits. Therefore in long run, average revenue will be equal to average cost, i.e.,
P=AR = LAC = LMC = Normal profits.
This relation is established at price P_1 and quantity OQ_4

8. A

According to diagram, AR is lesser than AC therefore it is operating at loss. As in Perfect Competition, there are no barriers to entry and exit. Therefore some firms will start to leave the industry which will reduce the supply of the industry. This will lead to higher price and hence higher AR. It will continue to happen unless and until the loss is eliminated and all firms earn normal profits.

9. C

In market economy, Prices perform four functions known as signal, incentive and rationing (allocation of goods between consumers) and allocation of resources. However, price does not provide any information to consumers regarding quality of the product. In periods of shortage, a product with low quality may have higher price and vice versa.

10. D

Gross elasticity of demand is ratio of percentage change in quantity demand of one firm's product with respect to change in price of another firm's product.
Mathematically:

$$XED=\frac{\%\Delta Qd\ of\ good\ X}{\%\Delta P\ of\ good\ Y}$$

In perfectly competitive industry all firms are price takers. Therefore change in price will always be equal to zero. Therefore if change in quantity is divided by zero, the cross elasticity of demand will be equal to infinity as shown below:

$$XED=\frac{\%\Delta Qd\ of\ good\ X}{0}=Infinity$$

Alternatively, as goods are homogenous and are perfect substitutes for firms in perfect competition, therefore there will be infinite XED between them.

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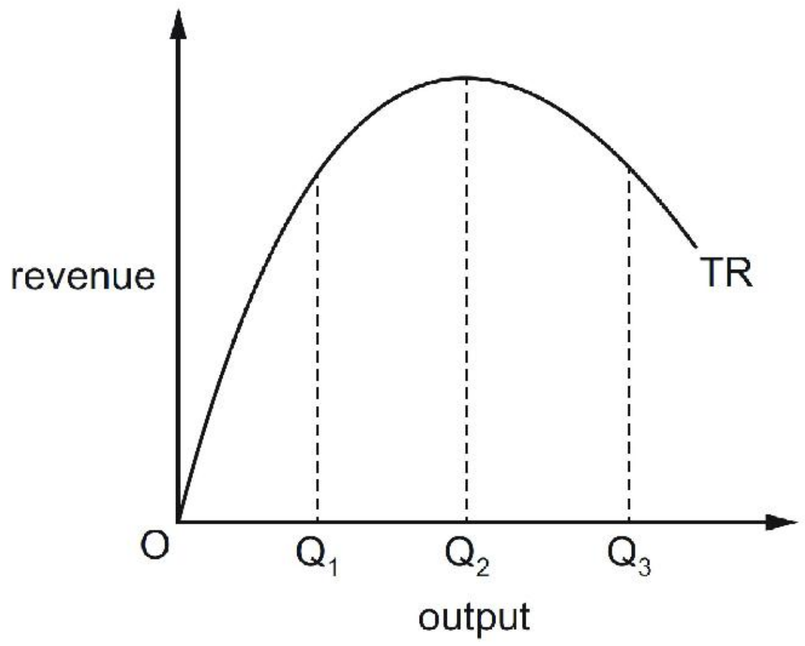
Unit 5 Monopoly

5.1 Revenue curves

1. M/J 16/P33/Q7

The diagram shows the total revenue curve for a firm operating in an imperfectly competitive market.

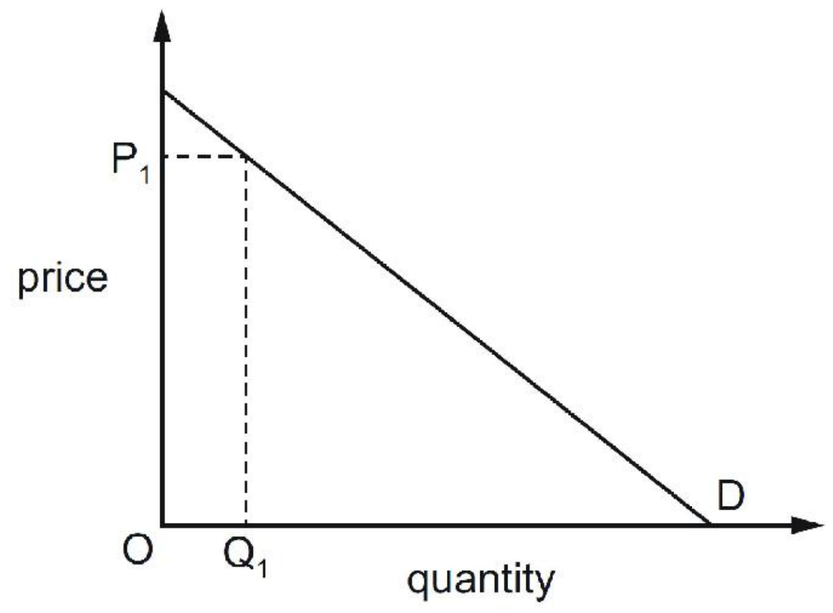


What is the value of the price elasticity of demand for the product at outputs Q1, Q2 and Q3?

	output Q_1	output Q_2	output Q_3
A	equal to 1	less than 1	greater than 1
B	greater than 1	equal to 1	less than 1
C	greater than 1	less than 1	equal to 1
D	less than 1	equal to 1	greater than 1

2. O/N 15/P33/Q11

The diagram shows the demand curve for a particular good.



What can be concluded from the diagram?

A Marginal revenue always has a positive value over the whole range of prices.

B Marginal revenue is equal to average revenue at P1.

C The elasticity of demand is constant regardless of the price of the good.

D Total revenue initially increases as price falls from P1, but at some point it will decrease.

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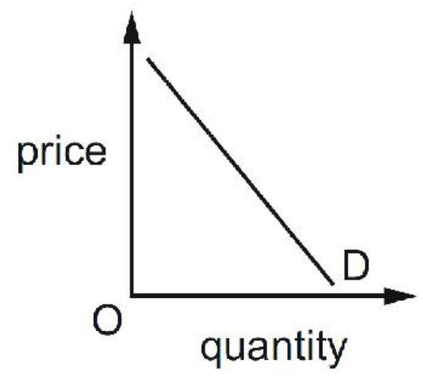
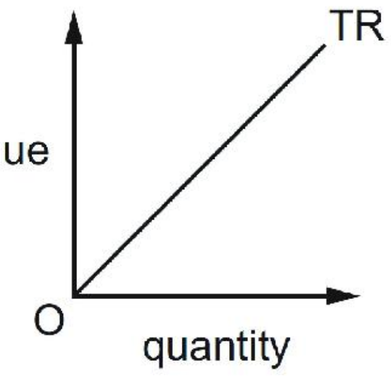
3. M/J 15/P32/Q10

The diagram shows the demand curve for a firm's product.

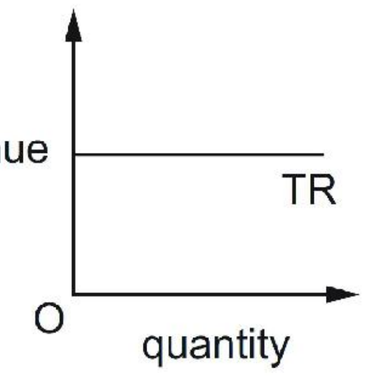


Which diagram depicts the shape of the firm's corresponding total revenue (TR) curve?

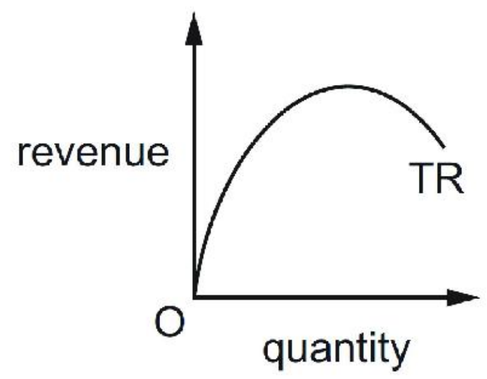
A



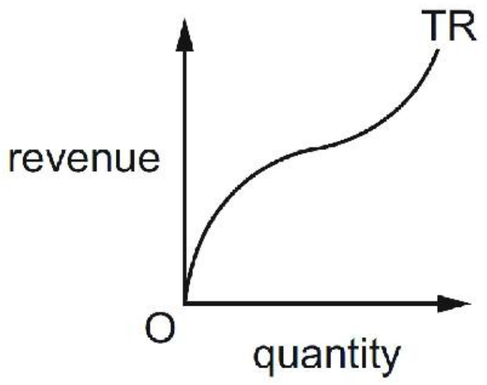
B



C



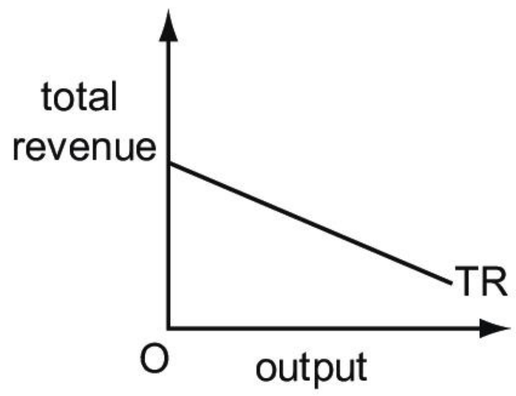
D



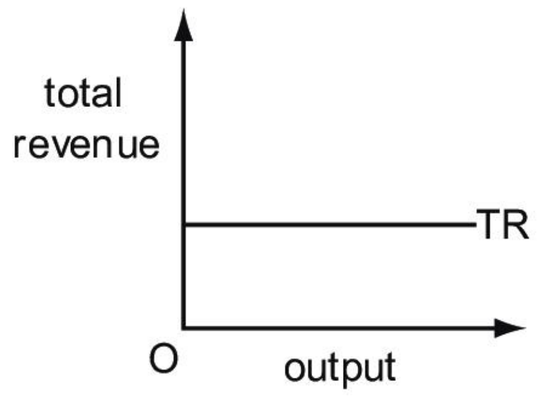
4. M/J 14/P32/Q11, M/J 03,O/N 07/P3/Q9

A monopolist faces a downward sloping, straight-line demand curve.
Which diagram shows his total revenue curve (TR)?

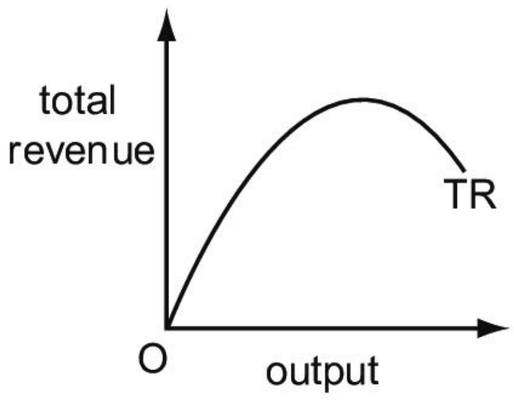
A



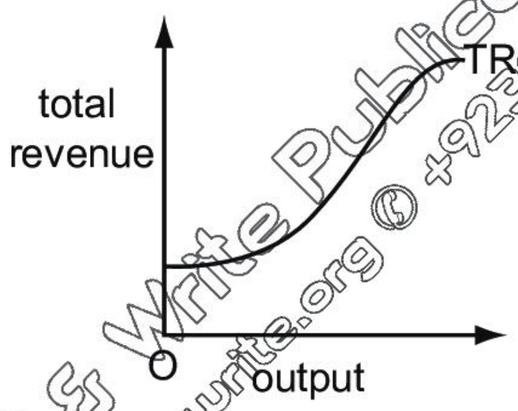
B



C



D



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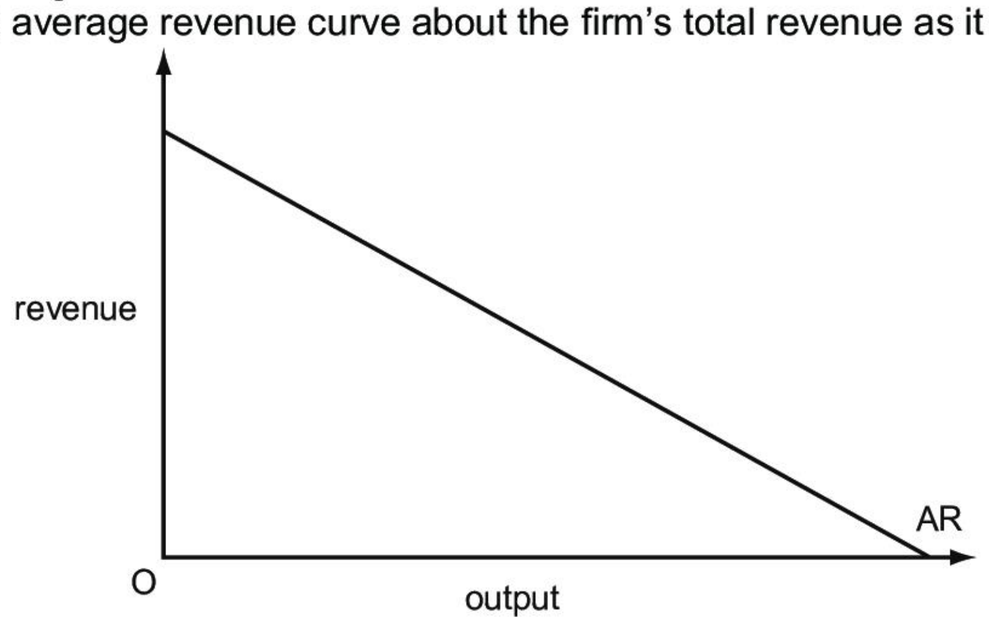
5. O/N 14/P14/Q11, O/N 06/P3/Q9

The diagram shows a firm's average revenue curve.

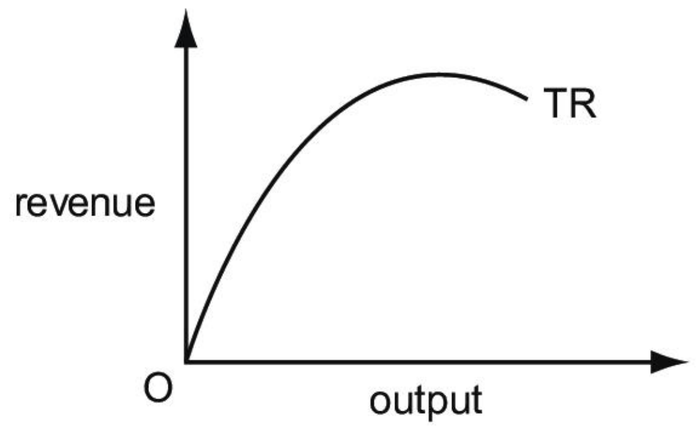
What can be deduced from the average revenue curve about the firm's total revenue as it increases output?



A It will rise continuously.
B It will fall continuously.
C It will rise initially then fall.
D It will fall initially then rise.

6. M/J 17/P33/Q9, M/J 04/P3/Q10

The diagram shows a firm's total revenue curve.

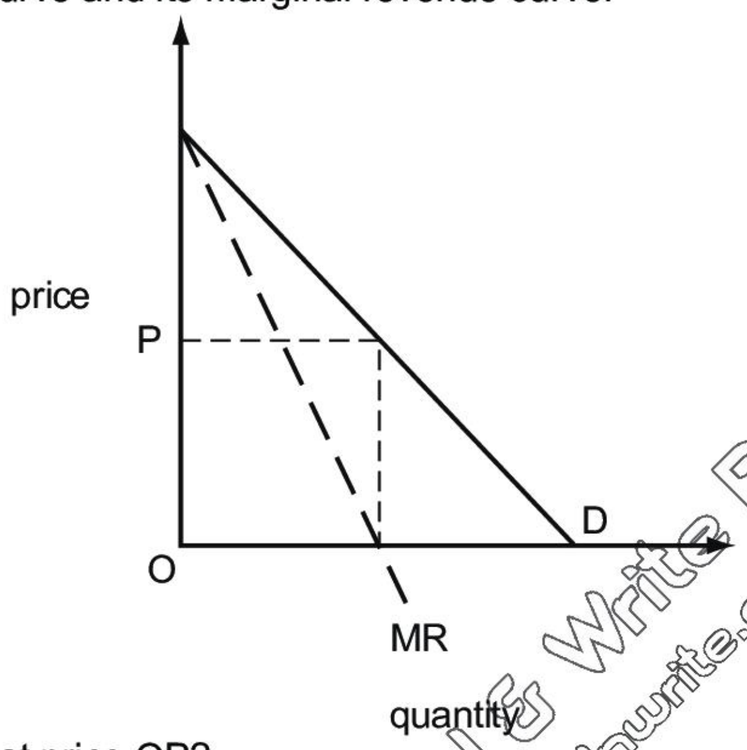


At the curve's highest point

A marginal revenue is equal to marginal cost.
B average revenue is equal to average cost.
C marginal revenue is equal to average revenue.
D marginal revenue is zero.

7. M/J 05/P3/Q11

The diagram shows a firm's demand curve and its marginal revenue curve.



What is the price elasticity of demand at price OP?

A zero **B** 0.5 **C** 1.0 **D** infinity

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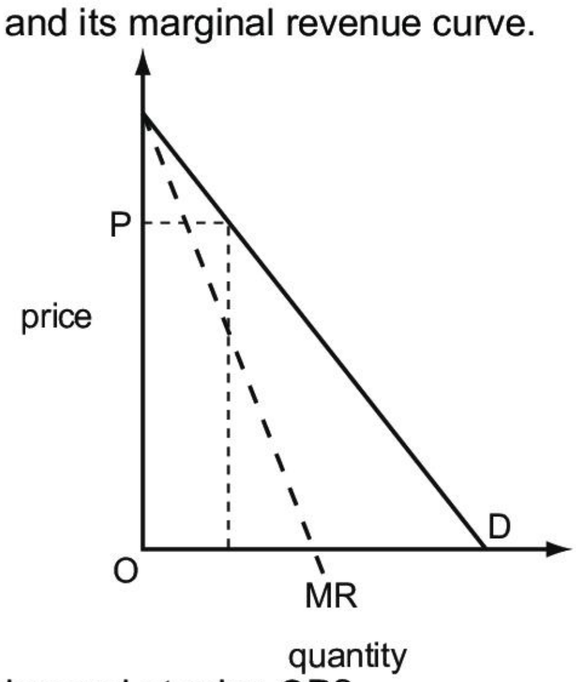
8. M/J 14/P31/Q10, M/J 10/P32/Q8

The diagram shows a firm's demand curve and its marginal revenue curve.



What is the approximate price elasticity of demand at price OP?

A 0.25 **B** 0.5 **C** 1 **D** 2

9. M/J 16/P32/Q8

A firm estimates that, all else remaining unchanged, an increase in its output will result in a fall in its revenue.
What can be concluded from this?

A The demand for the firm's product is price-elastic.

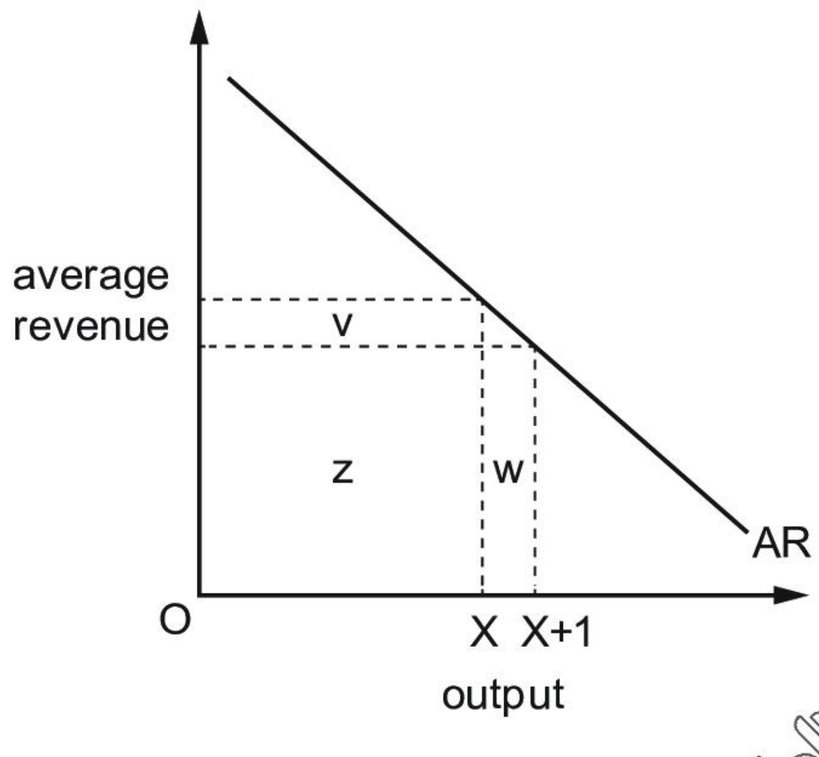
B The demand for the firm's product is price-inelastic.

C The supply of the firm's product is price-elastic.

D The supply of the firm's product is price-inelastic.

10. M/J 15/P31/Q11

The diagram shows a firm's average revenue (AR) curve.



The firm currently produces output OX.
Which area(s) will measure the firm's marginal revenue if it produces an additional unit of output?

A w + v **B** w + z **C** w – v **D** w only

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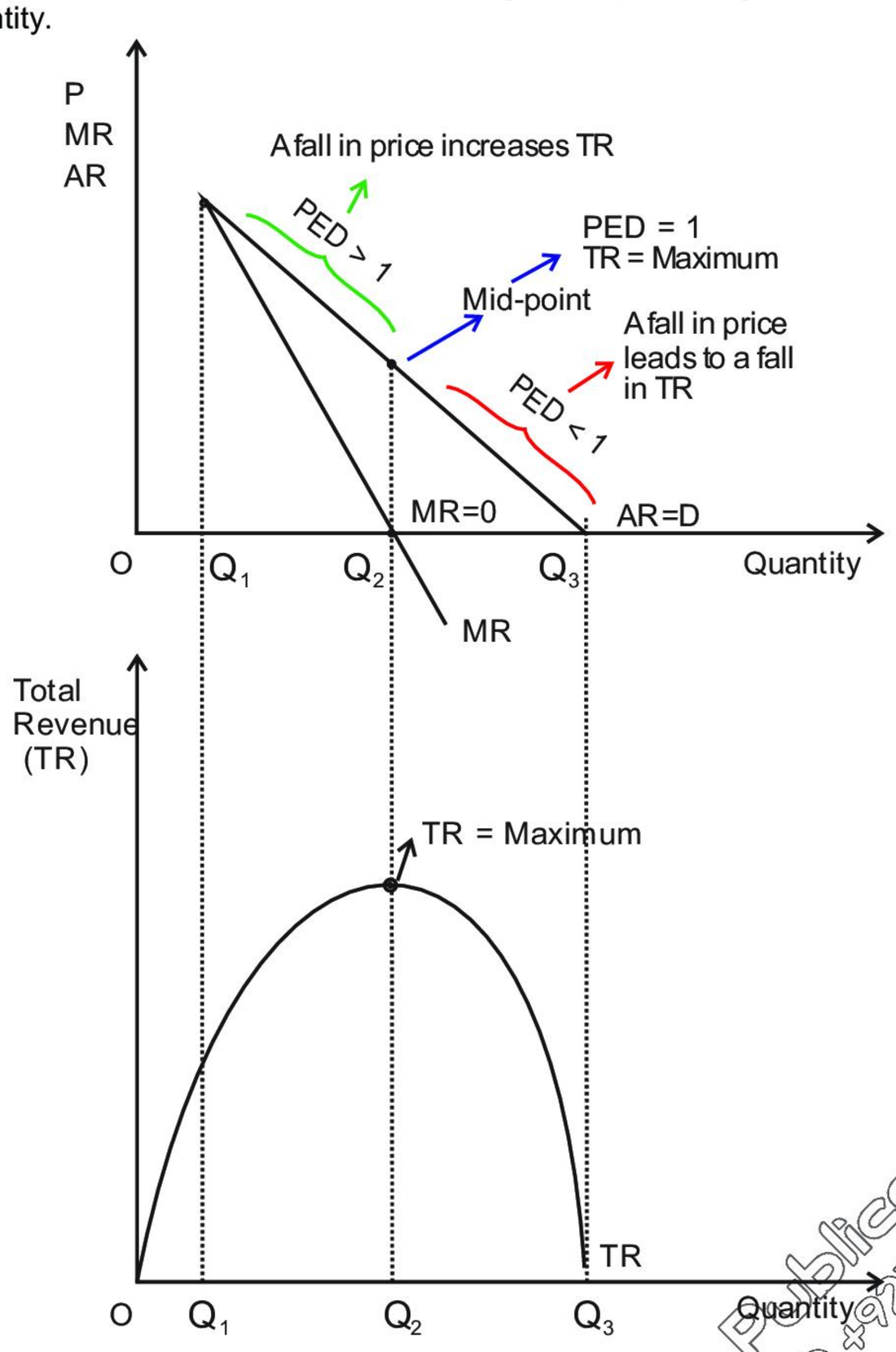
Answers Section

1. B

Initially the total revenue increases because the average revenue curve is elastic till its midpoint. Small proportionate decrease in price leads to greater proportionate increase in quantity and hence increases total revenue. After the midpoint, the total revenue declines as AR is inelastic and greater percentage decrease in price leads to lesser percentage increase in quantity.



2. D

Initially the total revenue increases because the average revenue curve is elastic till its midpoint. Small proportionate decrease in price leads to greater proportionate increase in quantity and hence increases total revenue. After the midpoint, the total revenue declines as AR is inelastic and greater percentage decrease in price leads to lesser percentage increase in quantity.

3. C

Initially the total revenue increases because the average revenue (demand) curve is elastic till its midpoint. Small proportionate decrease in price leads to greater proportionate increase in quantity and hence increases total revenue. After the midpoint, the total revenue declines as demand is inelastic and greater percentage decrease in price leads to lesser percentage increase in quantity.

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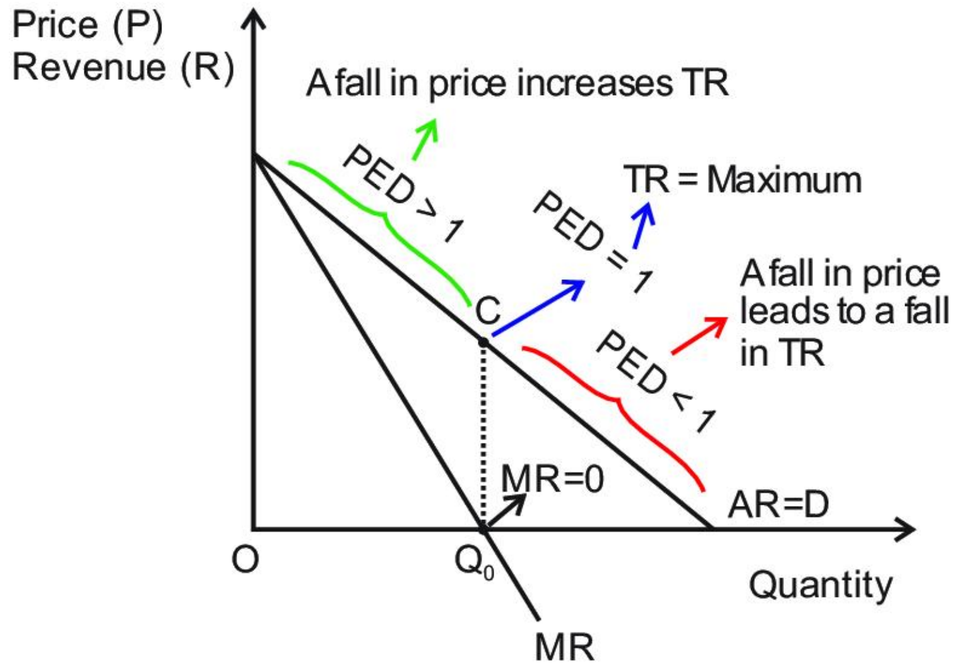
4. C
Initially the total revenue increases because the average revenue curve is elastic till its midpoint. Small proportionate decrease in price leads to greater proportionate increase in quantity and hence increases total revenue. After the midpoint, the total revenue declines as AR is inelastic and greater percentage decrease in price leads to lesser percentage increase in quantity.

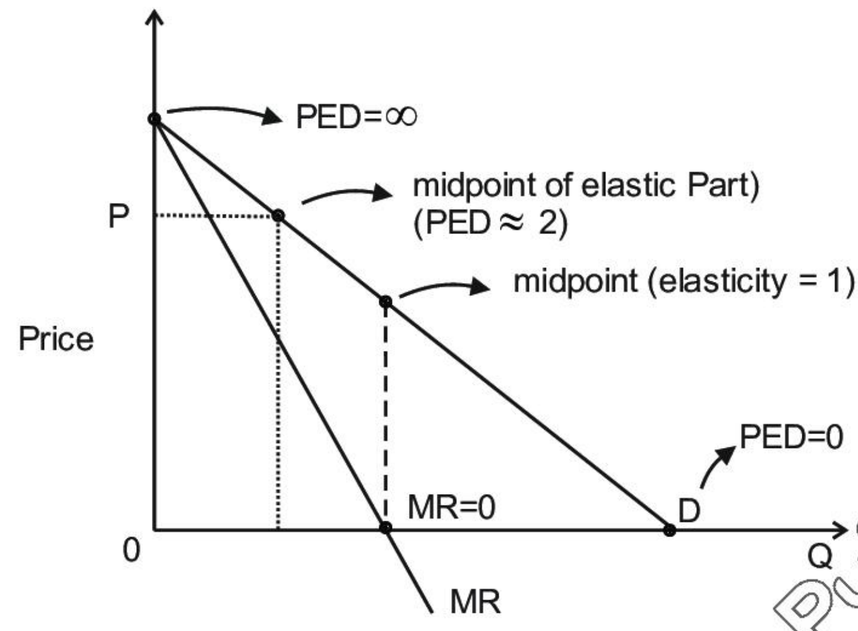
5. C
Initially the total revenue increases because the average revenue curve is elastic till its midpoint. Small proportionate decrease in price leads to greater proportionate increase in quantity and hence increases total revenue. After the midpoint, the total revenue declines as AR is inelastic and greater percentage decrease in price leads to lesser percentage increase in quantity.

6. D
When Total revenue is maximum, the marginal revenue is zero. Average revenue is not necessarily equal to average cost neither is it equal to marginal revenue as mentioned in other options.

7. C
At OP, marginal revenue is zero. This is the midpoint of the demand curve. At this point, there is unitary price elasticity of demand, i.e., PED = 1. In terms of diagram



8. D
At OP, the demand curve is at its elastic part. Therefore the approximate elasticity is 2 (elastic) because rest of all options show inelastic demand.



9. B
An increase in output is only possible if price decreases with ceteris paribus. If price falls with larger proportion and output increases with smaller proportion then demand will be inelastic and total revenue will fall.

10. C
Marginal revenue (or incremental revenue) can be defined as the additional revenue earned as a result of selling one more unit of output.

$MR = TR_n - TR_{n-1}$ (where n refers to the number of units sold) or

According to the diagram,

$TR_1 = v + z$ $TR_2 = z + w$

Therefore $MR = (z + w) - (v + z) = w - v$

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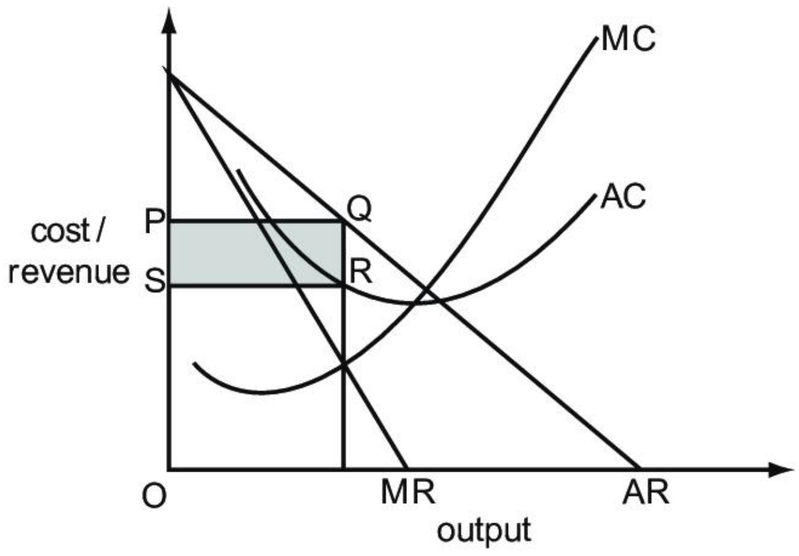
5.2 Monopoly-short-run price and output determination

1. M/J 03/P3/Q11

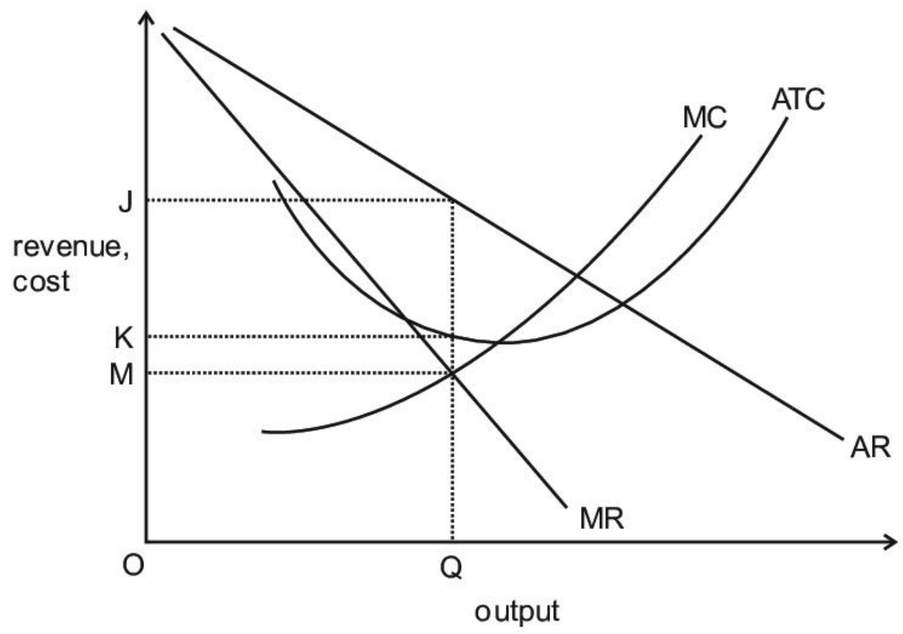
The diagram shows a firm's cost and revenue curves.
What does the shaded area SPQR measure?



A abnormal profit **B** consumer surplus **C** total revenue **D** transfer earnings

2. M/J 09/P3/Q13

The diagram shows the cost and revenue curves of a profit-maximising monopolist.



What measures the monopoly profit per unit of output made by the firm?

A JM **B** JK **C** JM × OQ **D** JK × OQ

3. O/N 10/P32/Q12, O/N 04

A monopolist finds that at his current level of output, marginal revenue is $2.00 and marginal cost is $2.50 In order to increase his current level of profits, which strategy should the monopolist adopt?

	price	output
A	decrease	unchanged
B	decrease	increase
C	increase	decrease
D	increase	unchanged

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4. O/N 13/P31/Q12, O/N 14/P14/Q13

At its current level of output, a monopolist is on the price-inelastic part of its demand curve.
What will be the effect of an increase in the price charged by the firm on its output and on its profits?

	output	profits
A	decrease	increase
B	decrease	uncertain
C	increase	increase
D	increase	uncertain

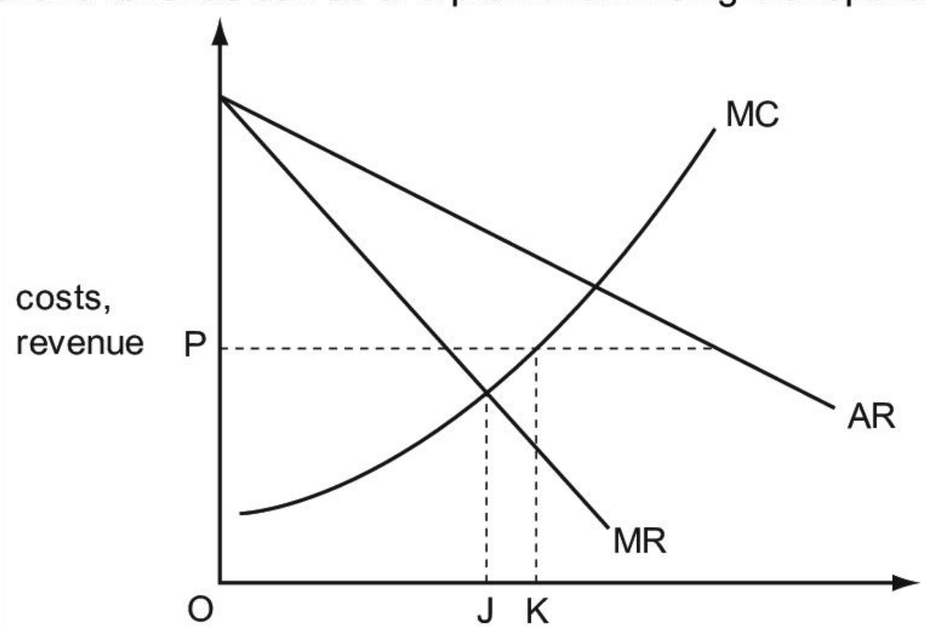
5. O/N 07/P3/Q13

At its current level of output a monopolist is on the price-inelastic part of its demand curve.
Which changes should it make to price and output in order to maximise its profits?

	price	output
A	increase	increase
B	increase	decrease
C	decrease	decrease
D	decrease	increase

6. O/N 13/P32/Q12

The diagram shows the initial cost and revenue curves of a profit-maximising monopolist.



What would cause the firm to increase its output from OJ to OK?

A The government fixes the price at OP.
B The government requires the firm to charge a price equal to marginal cost.
C The government imposes an indirect tax on the firm's product.
D The firm is allowed to earn only a normal profit.

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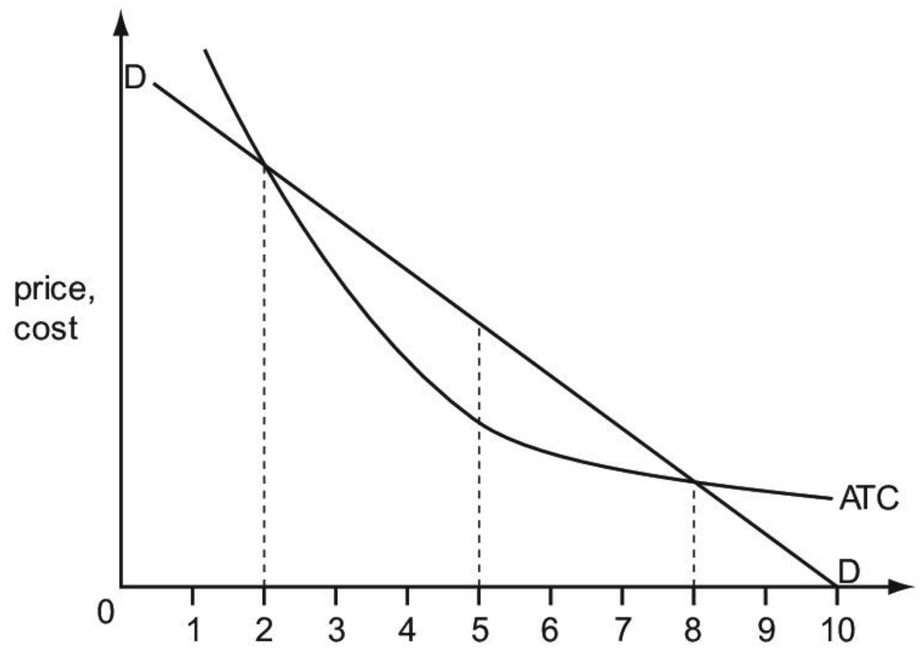
7. O/N 12/P31/Q11

In the diagram, DD is the demand curve facing a monopoly producer, and the rectangular hyperbola ATC is the firm's average total cost curve.



What is the firm's profit maximising level of output?

A 2000 units **B** 5000 units **C** 8000 units **D** 10 000 units

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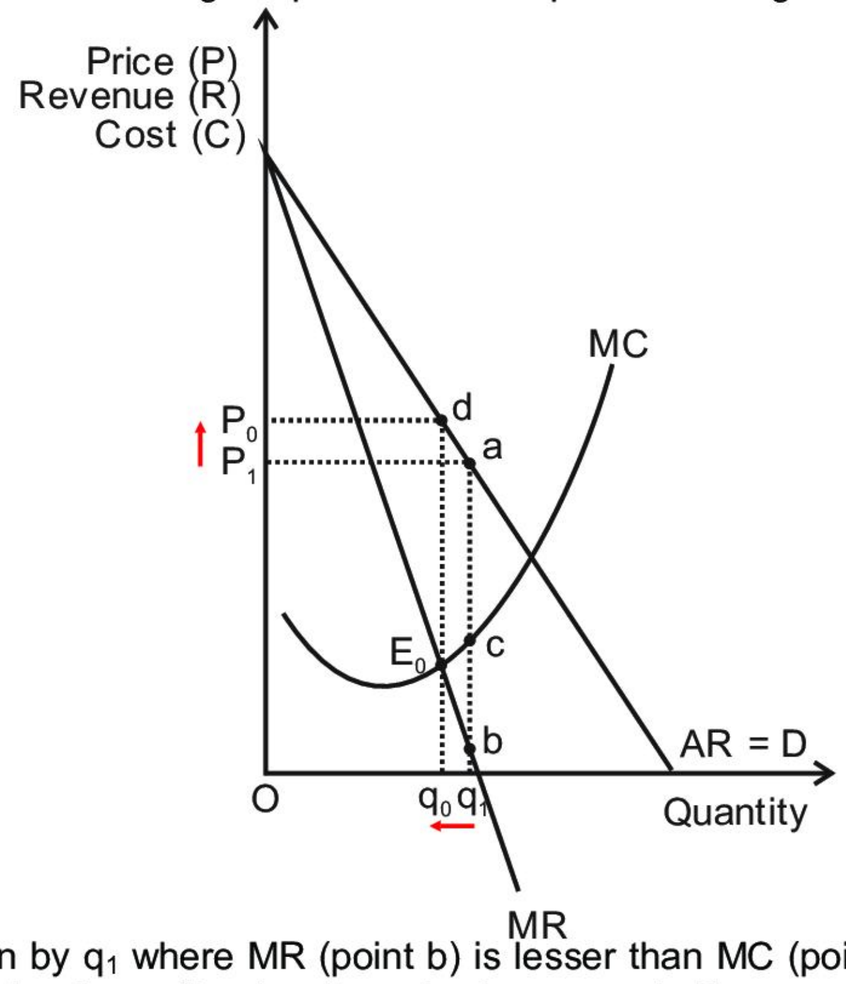
Answers Section

1. A
According to the diagram AR is greater than AC and per unit abnormal profit is PS. The total profit is denoted by area PQRS. Consumer surplus is triangular area above PQ whereas total revenue and transfer earnings are not represented.

2. B
The profit per unit is the difference between average revenue ad average total cost. Diagrammatically, it is the distance between AR and ATC at certain output. As monopoly will maximize profits and produce where MR = MC, therefore at that quantity, JK is the difference between AR and ATC and hence the profit per unit.

3. C
Currently, the marginal revenue is lesser than Marginal cost. Therefore, the firm will decrease its output is accordance with profit maximization rule. The effect of change in price can be explained through diagram below.



The current level of output is shown by q_1 where MR (point b) is lesser than MC (point c) and the price is P_1. When the firm decreases its quantity to maximize its profits at q_o the price increases to P_o as seen through diagram.

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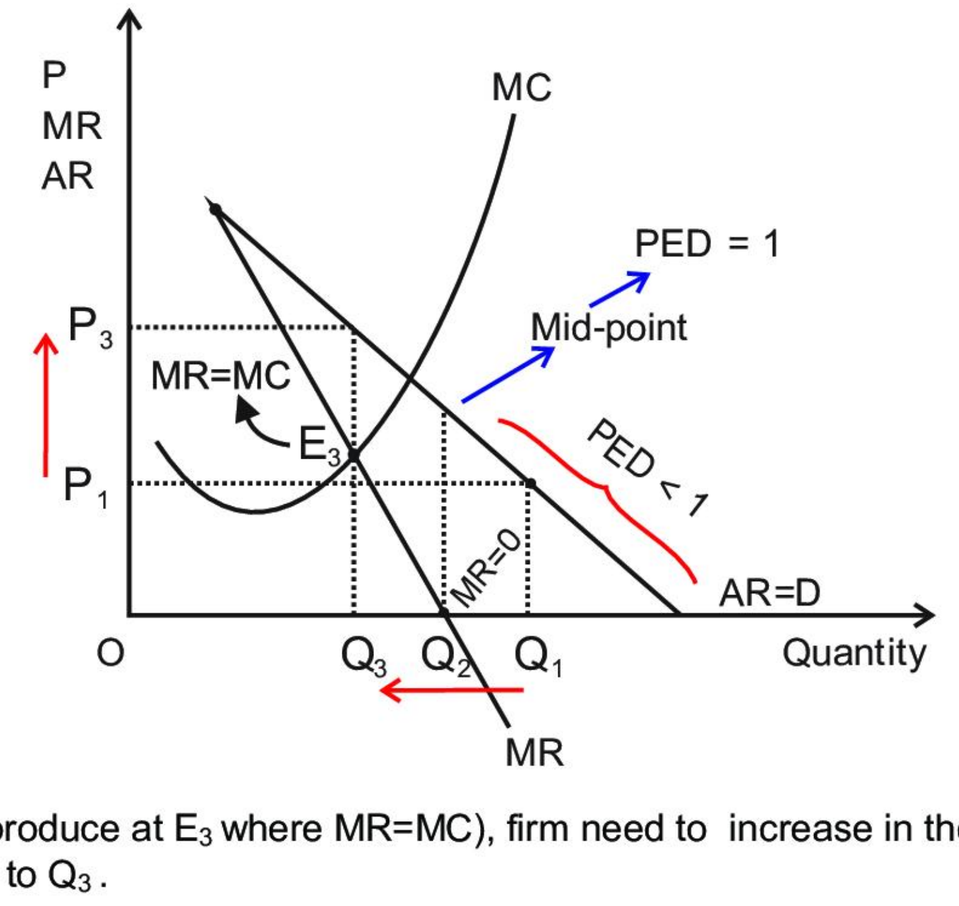
4. A

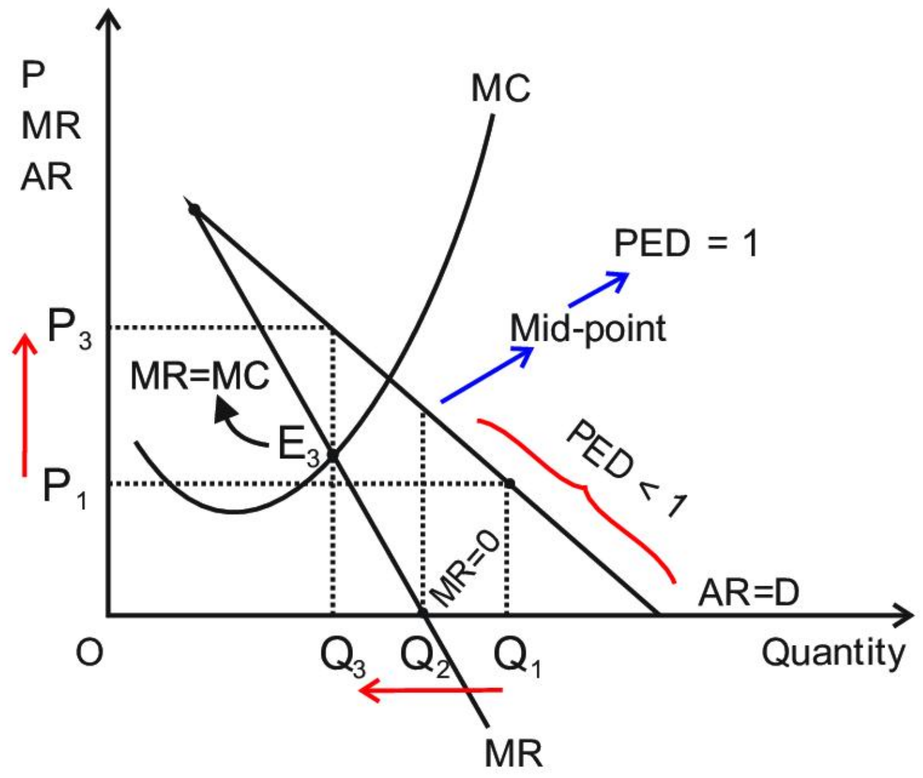
At its current level of output, say Q_1, a monopolist is on the price-inelastic part of its demand curve and charging price P_1 as shown in the diagram below.



In order to maximise profits (to produce at E_3 where MR=MC), firm need to increase in the price from P_1 to P_3 and therefore reduce output from Q_1 to Q_3 .

5. B

At its current level of output, say Q_1, a monopolist is on the price-inelastic part of its demand curve and charging price P_1 as shown in the diagram below.



In order to maximise profits (to produce at E_3 where MR=MC), firm need to increase in the price from P_1 to P_3 and therefore reduce output from Q_1 to Q_3 .

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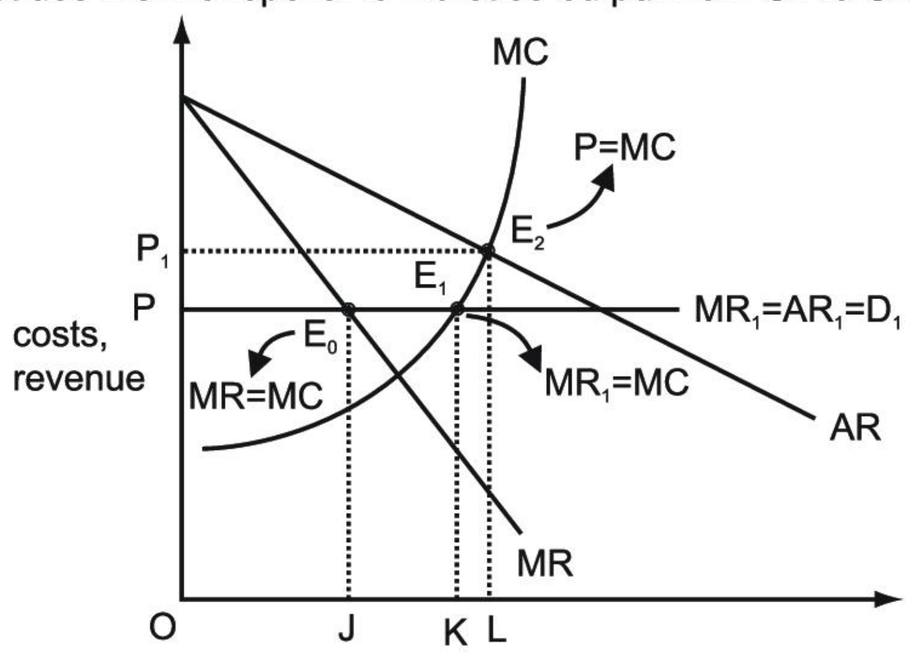
6. A

If the government fixes a price of OP, so the firm will be forced to charge the same price making the monopolist price taker. After becoming price taker, monopolist will face $P=MR_1=AR_1$ and new equilibrium will be established where MC cuts the MR_1 i.e. E_1 and this will cause the monopolist to increase output from OJ to OK.

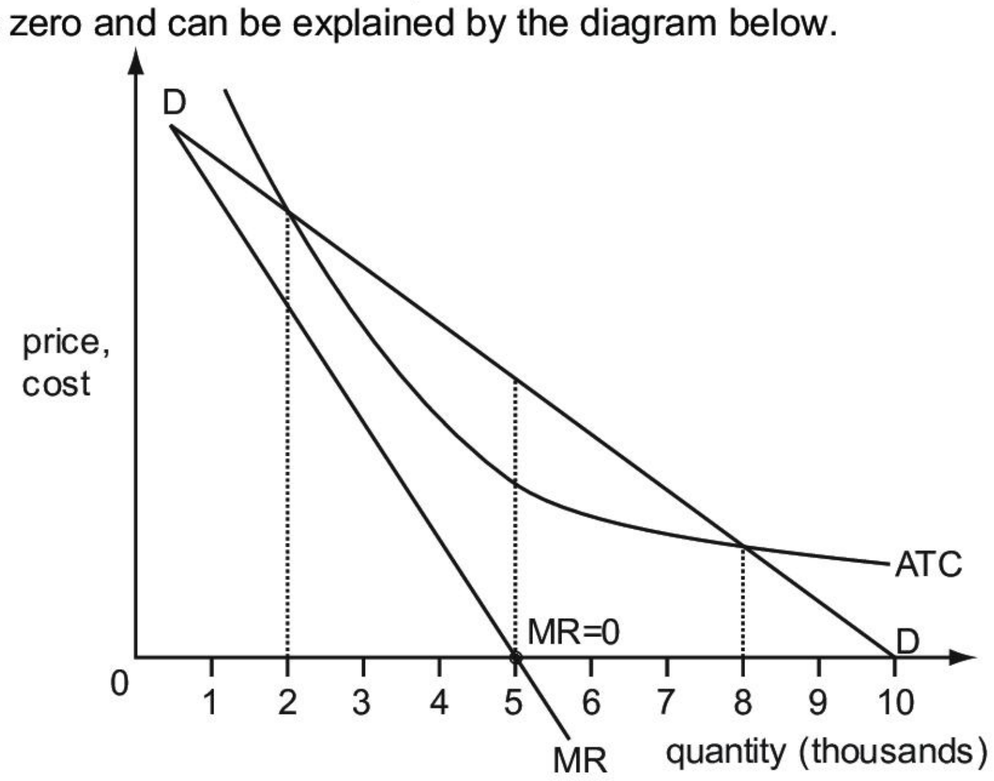


If the government requires marginal cost pricing then, the firm will produce where MC=AR and will be at output OL rather than OK. An indirect tax will cause a leftward shift in the monopolist's supply curve and force it to reduce output rather than increase it. An Average cost curve has not been shown so it is difficult to determine where the firm will earn normal profit.

7. B

Total profit is maximised where MR=MC.

According to the diagram, ATC=AFC which means VC , AVC and MC all of them are zero. Hence, in this case total profit will be maximised where MR is zero and can be explained by the diagram below.



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5.3 Monopoly-multiple topics of chapter 5

1. **M/J 14/P31/Q8**
What will be the effect on price and output of a subsidy on each item produced by a profit maximising monopolist?

	effect on price	effect on output
A	decrease	increase
B	decrease	unchanged
C	unchanged	increase
D	unchanged	unchanged

2. **O/N 12/P32/Q7**
What would be the effect of imposing a specific tax on each item produced by a profit maximising monopolist?
A Average revenue falls by the amount of the tax.
B Marginal costs rise by the amount of the tax.
C Price increases by the amount of the tax.
D There will be no change in price or output.

3. **M/J 06/P3/Q14**
The maximum price that a privatised natural monopoly is allowed to charge its customers is determined by the following formula:
The price charged in the previous year plus the annual % change in the consumer price index minus 2%.
Assuming the firm charges the maximum price allowed, how will an increase in productive efficiency affect customers and the company's shareholders?

	customers	shareholders
A	gain	gain
B	gain	no effect
C	no effect	gain
D	no effect	no effect

4. **M/J 05/P3/Q13**
The government imposes a specific tax equal to $0.20 per unit on the output of a monopoly producer.
What will be the effect on the price charged by the monopoly and on the quantity it produces?

	price	quality
A	increases by $0.20	decreases
B	increases by less than $0.20	decreases
C	increases by $0.20	unchanged
D	increases by less than $0.20	unchanged

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5. M/J 01/P3

Many public utilities can be described as 'natural' monopolies.
Which statement best describes the situation leading to a 'natural' monopoly?

A There are high fixed costs and falling average costs over all outputs demanded.

B There are legal restrictions on new entrants.

C A single firm controls the supply of raw materials.

D The firm has a patent on an essential process.

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Answers Section

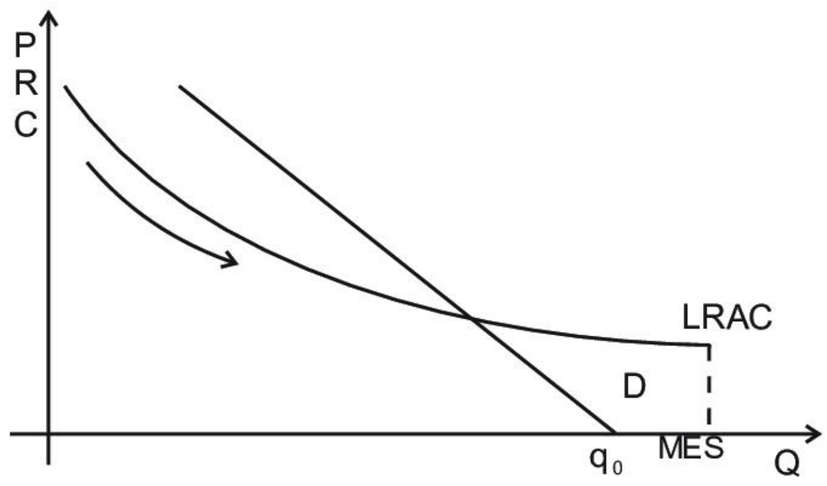
1. A
Subsidy will reduce the marginal cost of the monopolist and therefore will reduce price and increase output.

2. B
A monopolist is a price setter so a tax levied would result in the monopolist changing the equilibrium price and output. If a specific tax is imposed then marginal cost will increase by the amount of the tax. This is because marginal cost represents the extra cost of making an additional unit. So other than the labour and material cost, marginal cost will also show the specific tax since that is a cost the firm has to pay for selling that product so option B is correct.

3. C
An increase in productive efficiency will reduce the firms cost but as the firm will charge a price minimum allowed by given formula. Hence, shareholders will gain in terms of more profits but customers will not benefit from this change.

4. B
As the tax of $ 0.20/unit is levied the price charged by monopoly will increase by less than $ 0.20/unit because the effect of tax incidence will fall on both consumers and producers unless either the demand or supply is perfectly inelastic or perfectly elastic. The quantity will decrease because tax will reduce the supply.

5. A
In natural monopoly, a single firm is sufficient to produce whole market demand, e.g., WAPDA, WASA, Railway etc. In natural monopoly, there are high fixed costs.
Natural monopolies form where only one efficient firm can operate efficiently in the industry. The firm will produce below its minimum efficient scale of output as market demand exhausts as shown in the following diagram.



Therefore, there are high fixed costs which prevents other firms from entering and operating efficiently and there are falling average costs as output increases.

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Unit 6 Monopolistic competition

6.1 Monopolistic competition

1. M/J 16/P31/Q9

A firm in monopolistic competition is maximising profit and producing at the minimum point on its average total cost curve.

What could not be correct?

A Marginal cost equals average cost.

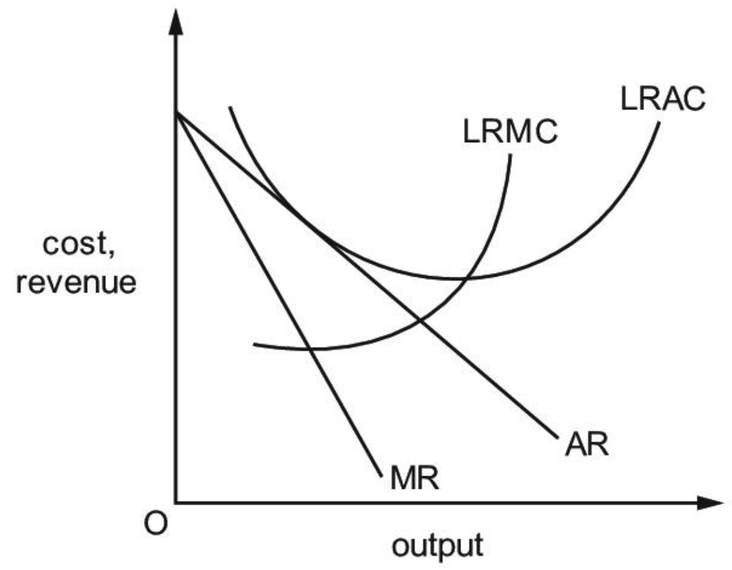
B Marginal cost equals marginal revenue.

C The firm is making normal profit.

D The firm is making supernormal profits.

2. M/J 15/P31/Q13

The diagram shows the cost and revenue curves of a monopolistically competitive firm in long-run equilibrium.



Which statements correctly describe the performance of this firm?

	the firm is operating with excess capacity	the firm is fully exploiting available economies of scale
A	no	no
B	no	yes
C	yes	yes
D	yes	no

3. O/N 00/P3

A firm in monopolistic competition is producing at the minimum point on its average total cost curve.

What can be deduced from this?

A It is maximizing its profits.

B It is minimizing its total costs.

C marginal cost equals average total cost.

D Marginal cost equals average variable cost.

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4. O/N 12/P31/Q13

What would be the short-run effect on price, output and profits of an increase in demand for the product of a monopolistically competitive firm?

	price	output	profits
A	increase	increase	increase
B	increase	no change	no change
C	no change	increase	increase
D	no change	no change	increase

5. O/N 93/P3

A patent, which has conferred a temporary monopoly position on a firm lapses.
What is likely to happen to the demand curve for the firm's product?

A It will shift to the left and become less elastic.

B It will shift to the left with unchanged elasticity.

C It will shift to the left and become more elastic.

D It will shift to the right and become less elastic.

6. M/J 87,M/J 88,M/J 91/P3

An industry is characterized by monopolistic competition when

A there are few buyers.

B sellers are faced with several markets.

C all firms make super-normal profits.

D there are differences between the products of firms.

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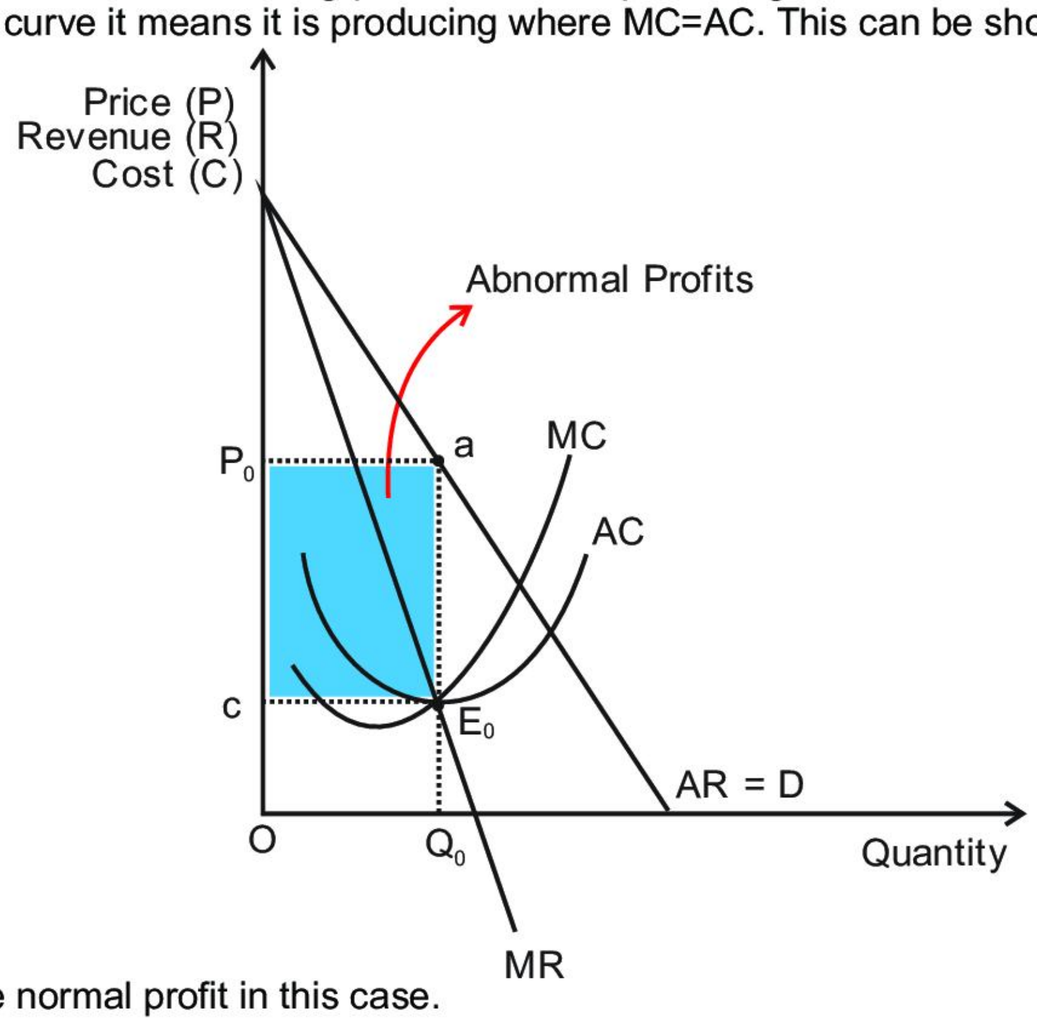
Answers Section

1. C

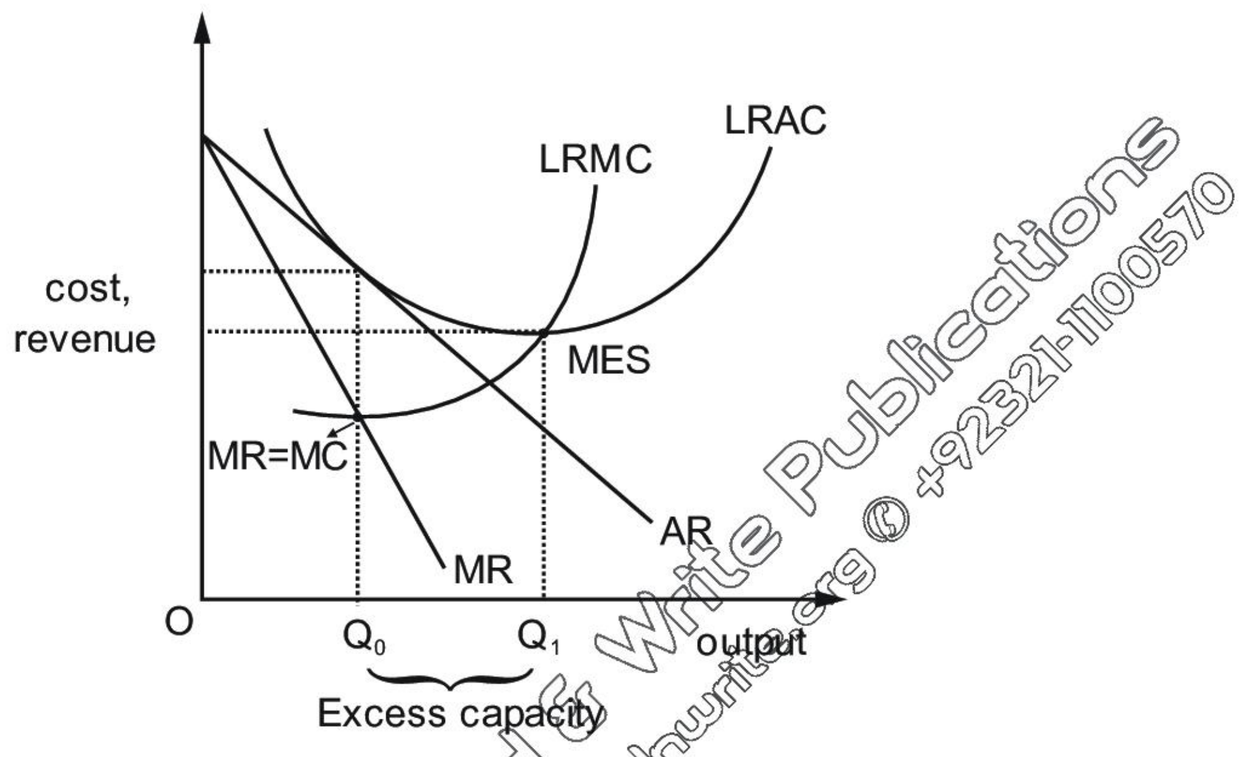
If a firm in monopolistic competition is maximising profit , it will be producing at MR=MC and if producing at the minimum point on its average total cost curve it means it is producing where MC=AC. This can be shown in the following diagram.



Hence, the firm can not make normal profit in this case.

2. D

Economies of scale and capacity is fully utilised at MES (minimum efficient scale) i.e., lowest point of LRAC at outpout Q_1 However, current production is at output Q_0 which means there is excess capacity and economies of scale are not fully utilised as shown in the diagram below.



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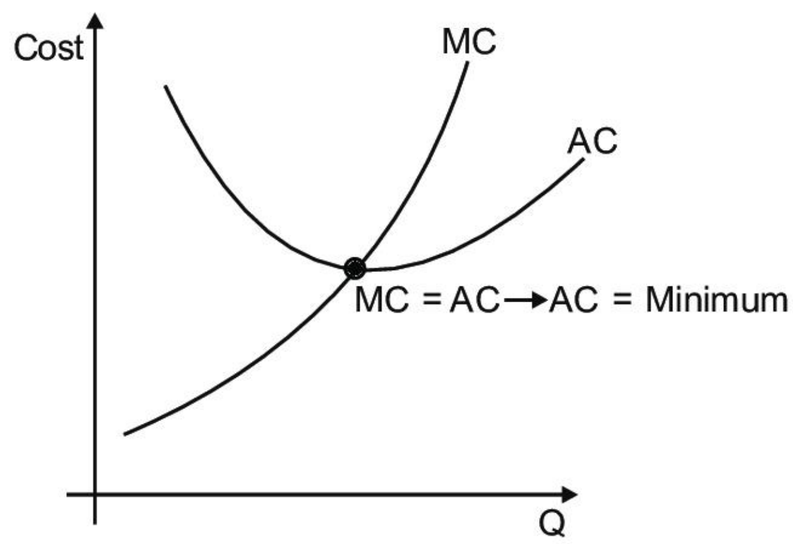
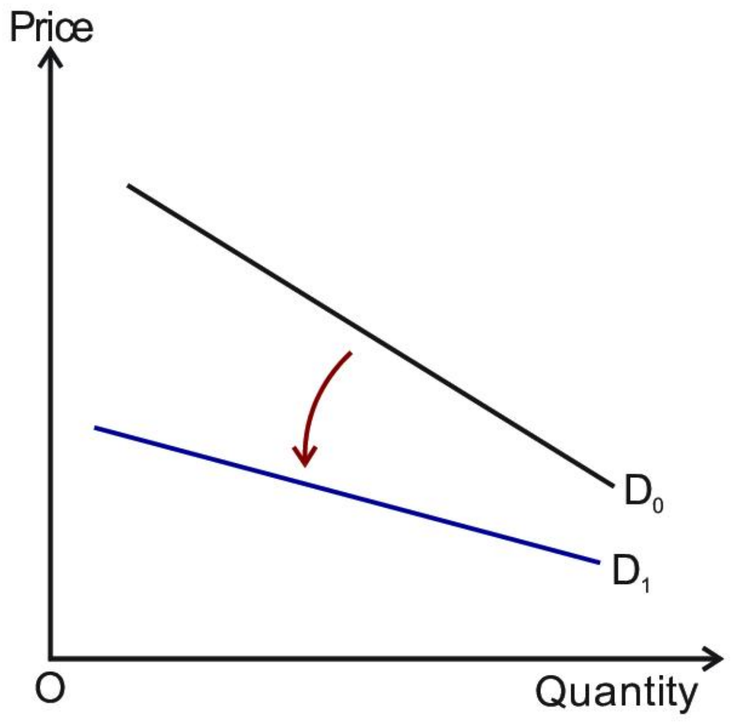
3. C
Where MC = AC, Average total cost is minimised regardless of market. As shown in following diagram:



4. A
An increase in demand will raise AR and MR of the firm, therefore, firm will be able to charge higher price, sell higher output and earn greater profits.

5. C
As the temporary monopoly lapses, the demand of the firm will fall and demand curve will shift to the left. As more firms will break the monopoly, competition will increase, making the demand of the firm more elastic. The collective effect is shown in diagram.



6. D
Monopolistic competition is characterized by many sellers with close substitutes. The products sold are not usually homogenous and there are differences between products of firms.

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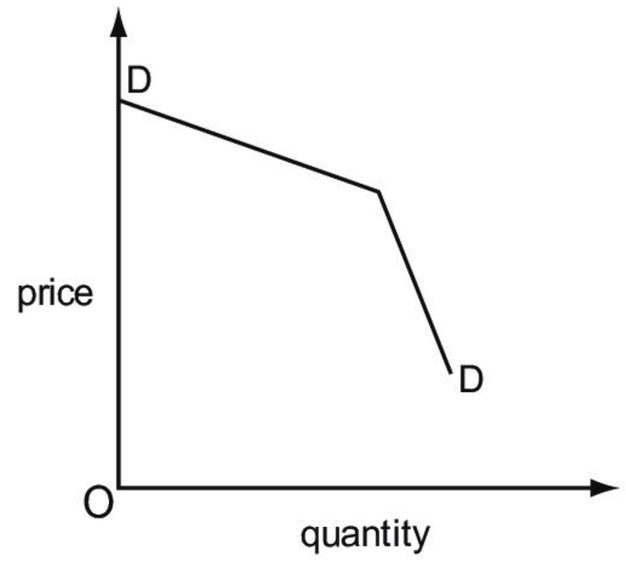
Unit 7 Oligopoly

7.1 Oligopoly - Kinked demand curve

1. O/N 14/P14/Q12, M/J 02/P32/Q8
What is an assumption underlying the kinked demand curve in oligopoly?

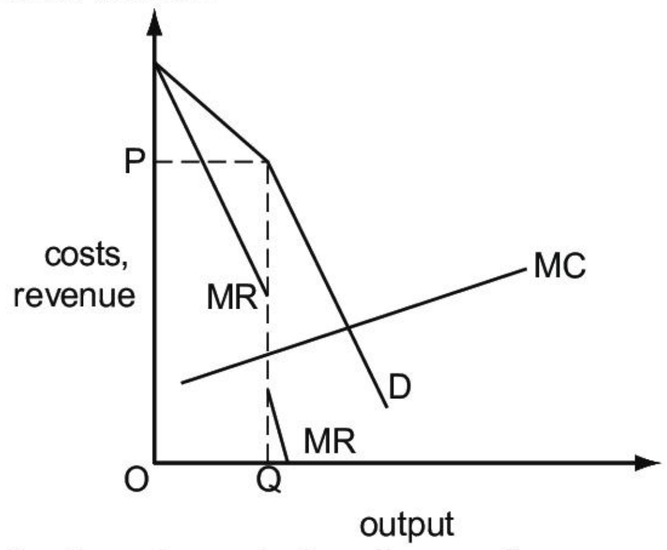
A A firm will increase its price in response to a price increase by a rival.
B A firm will not match a price cut by a rival.
C Consumers are less sensitive to price increases than price decreases.
D Rivals are expected to match any reduction in price.

2. M/J 17/P32/Q13, O/N 07/P3/Q11
Which feature of oligopoly is being assumed when the demand curve for an individual firm is as shown in the diagram?



A price discrimination
B price leadership by the dominant firm
C interdependence between firms
D collusion between firms

3. M/J 18/P32/Q7, O/N 05/P3/Q13
The diagram shows a firm's cost and revenue curves.



Which features are associated with the situation shown in the diagram?

A economies of scale and allocative efficiency
B interdependence and allocative efficiency
C price rigidity and economies of scale
D price rigidity and interdependence

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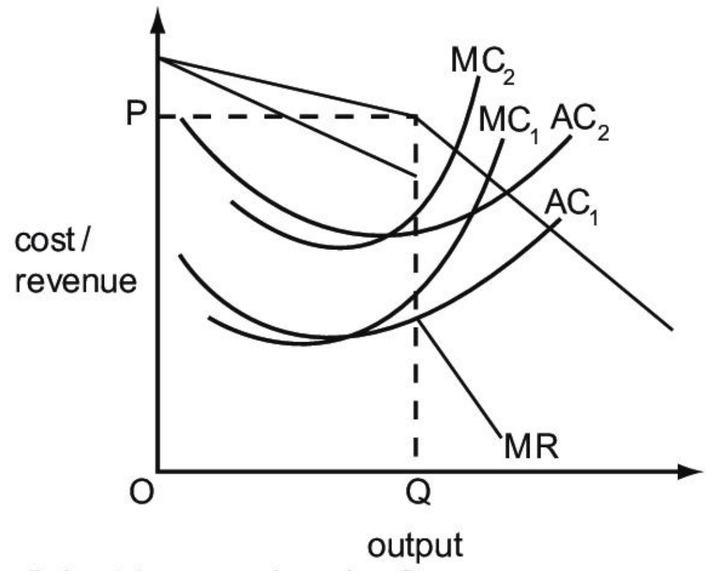
4. M/J 03/P3/Q12

The diagram shows the cost and revenue curves of an oligopolistic. In the initial situation, AC_1 is its average cost curve, MC_1 is its marginal cost curve and the firm is in equilibrium at output OQ and price OP. The cost of labour rises, so that AC_2 and MC_2 become the relevant cost curves.



What should the firm do to maximise profit in this new situation?

A leave both price and output unchanged
B leave price unchanged and increase output
C leave price unchanged and reduce output
D raise price and leave output unchanged

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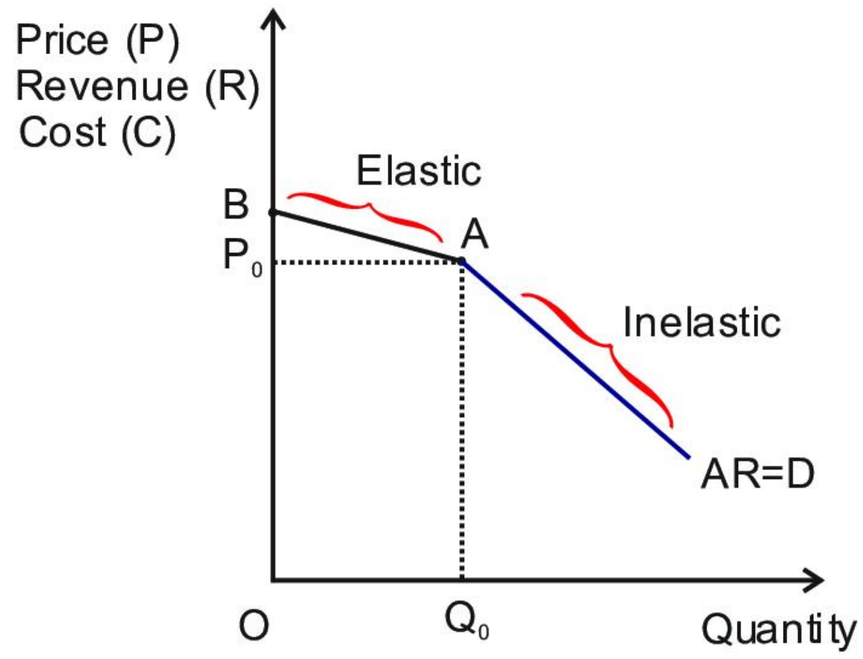
Answers Section

1. D

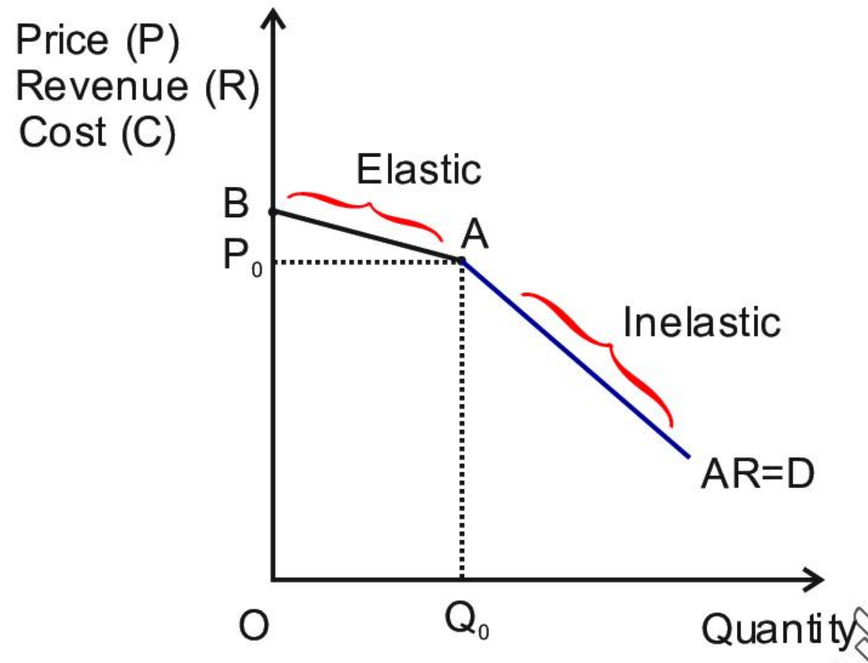
The nature of kinked demand curve helps to show the interdependence of firms. Suppose take a predetermined 'a' with price P_o and quantity Q_o.



If the firm increases its price beyond P_o, the rivals will not follow the firm. The demand for the firm's product will become elastic and small percentage increase in price will lead to greater percentage decrease in quantity. However if the firm decreases it price below P_o other rivals will follow, and the demand for the firm's product will become inelastic.

2. C

The nature of kinked demand curve helps to show the interdependence of firms. Suppose take a predetermined 'a' with price P_o and quantity Q_o.



If the firm increases its price beyond P_o, the competitors will not follow the firm. The demand for the firm's product will become elastic and small percentage increase in price will lead to greater percentage decrease in quantity. However if the firm decreases it price below P_o other competitors will follow, and the demand for the firm's product will become inelastic.

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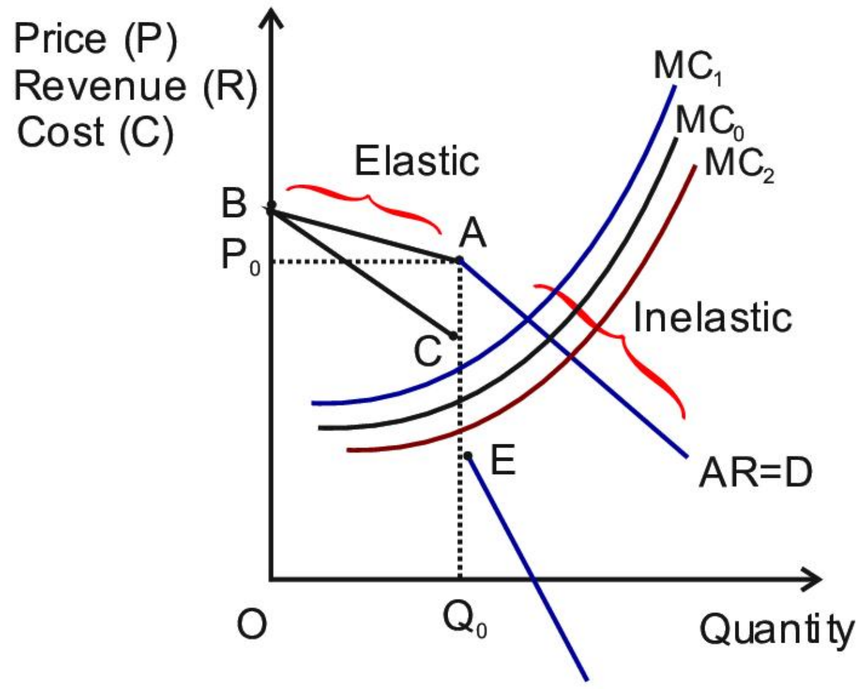
3. D

Kinked demand curve helps to show two distinct features of oligopoly. The nature of demand curve helps to show the interdependence of firms. Suppose take a predetermined point 'a' with price P_o and quantity Q_o.



If the firm increases its price beyond P_o, the competitors will not follow the firm. The demand for the firm's product will become elastic and percentage small increase in price will lead to greater percentage decrease in quantity. However if the firm decreases it price below P_o other competitors will follow, and the demand for the firm's product will become inelastic.

The broken curve of marginal revenue shows price rigidity of the firm, i.e., changes in price do not affect the output. As profit is maximized at MR = MC therefore, as long as MC passes through broken part of MR, the quantity will be unaffected .

4. A

This situation is related to price rigidity in oligopoly. As long as MC passes through the broken part of MR, the firm will keep the price and output unchanged.

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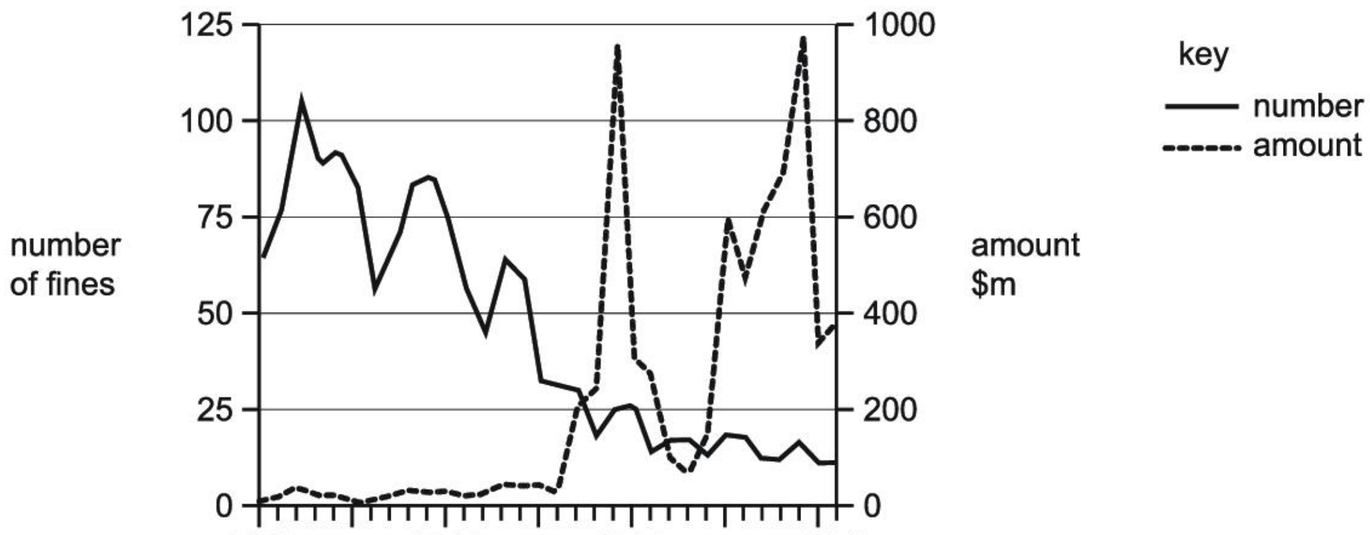
7.2 Oligopoly-Price leadership and cartel

1. O/N 14/P32/Q19

The diagram shows the number and amount of fines ($m) imposed by the US Department of Justicefor firms' illegal cartel behaviour between 1980 and 2011.



What is the most likely conclusion from the diagram about the view of the US Department of Justice of firms' cartel behaviour?

A It believed that cartel behaviour was unimportant before 1980.

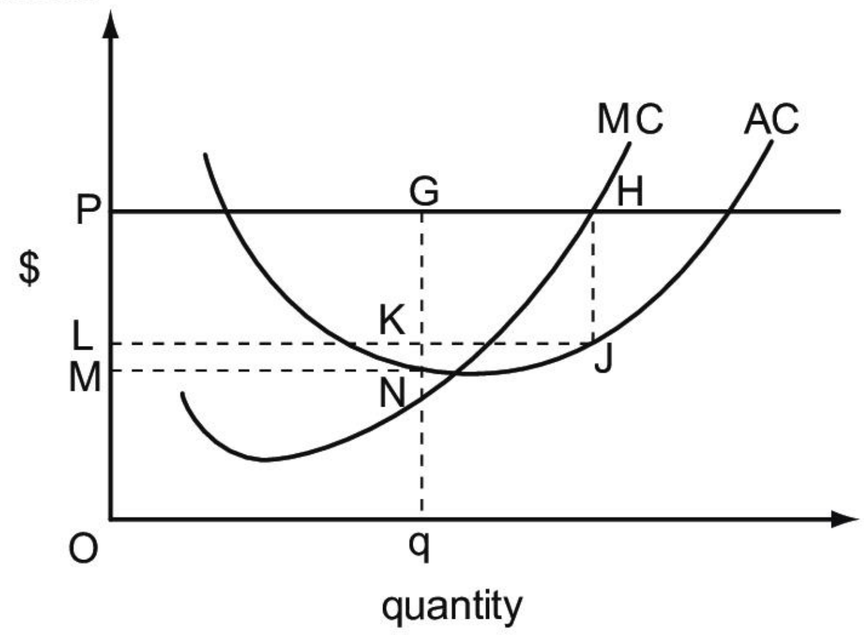
B It believed that illegal cartel behaviour was insignificant in 2011.

C It believed that increasing fines was necessary to deter cartel behaviour.

D It believed that the free market can regulate cartel behaviour.

2. O/N 97,M/J 01,M/J 10/P32/Q11

The diagram shows a firm's cost curves.



The firm enters a collusive agreement with other firms in the industry, in which it is agreed that all firms will charge a common price, OP, and each firm agrees to restrict the level of its output to a production quota set by the industry cartel.
The firm is allocated a production quota, Oq.
The firm decides to cheat in order to maximize its profits. What is its short-run increase in profits?

A PGKL **B** PHJL **C** PHJL – PGNM **D** PGKL – LKNM

3. M/J 07/P3/Q14

An industry consists of a dominant producer and a number of smaller producers. The dominant producer joins with some of the other producers to form a cartel with a view to maximising their joint profits.
Who will derive the greatest short-run benefit from this arrangement?

A the industry's suppliers

B the dominant firm

C smaller producers within the cartel

D the producers who do not join the cartel

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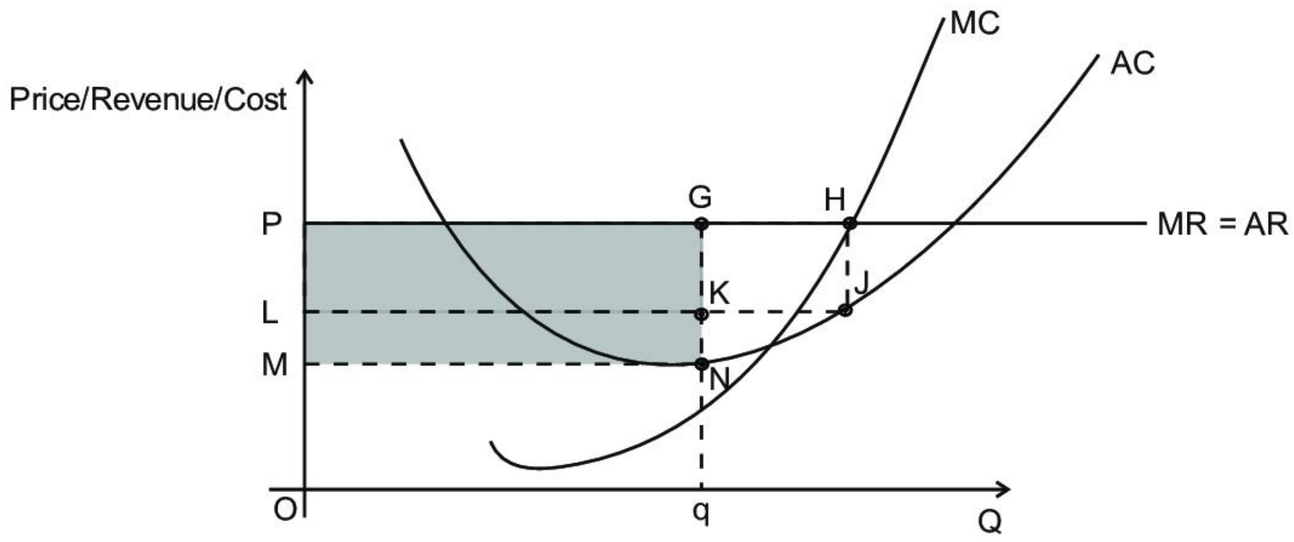
Answers Section

1. C

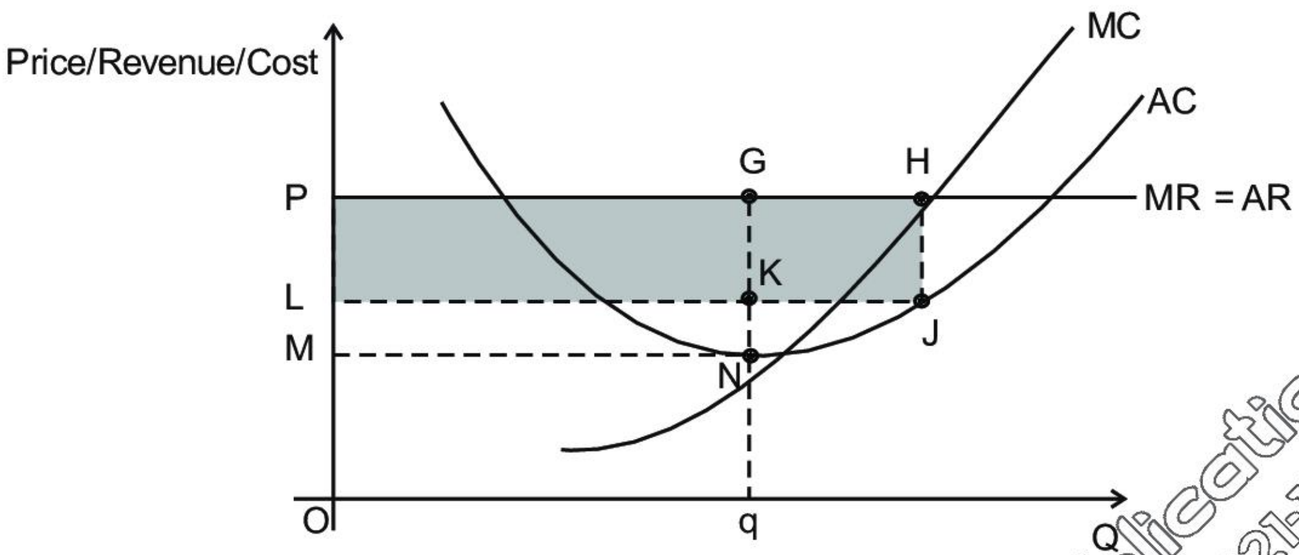
No information is provided before the 1980's so that information cannot be correct. Cartel behavior was not insignificant since in 2011 the U.S department of justice still had to fine $400m on firms engaging on such behaviors which means, they did have considerable impact in the market which prompted the authorities to impose such heavy fines. Cartel behavior in the U.S has reduced over the timeline so it can be concluded that increasing fines has deterred firms from engaging in such activities. Free market cannot regulate cartel behavior which is why the department of justice had to intervene to discourage cartel behavior.

2. C

The firm is bound by the cartel and produces quantity O_q with price OP_0 per unit profit at this stage is PM whereas total profit is the area PGNM. This is shown by diagram below.



However if firm starts to maximize its profit, then it will produce where P=MR=MC. This is shown by point H. At that point, per unit profit is PL whereas total profit is area PHJL. This is shown by diagram below.



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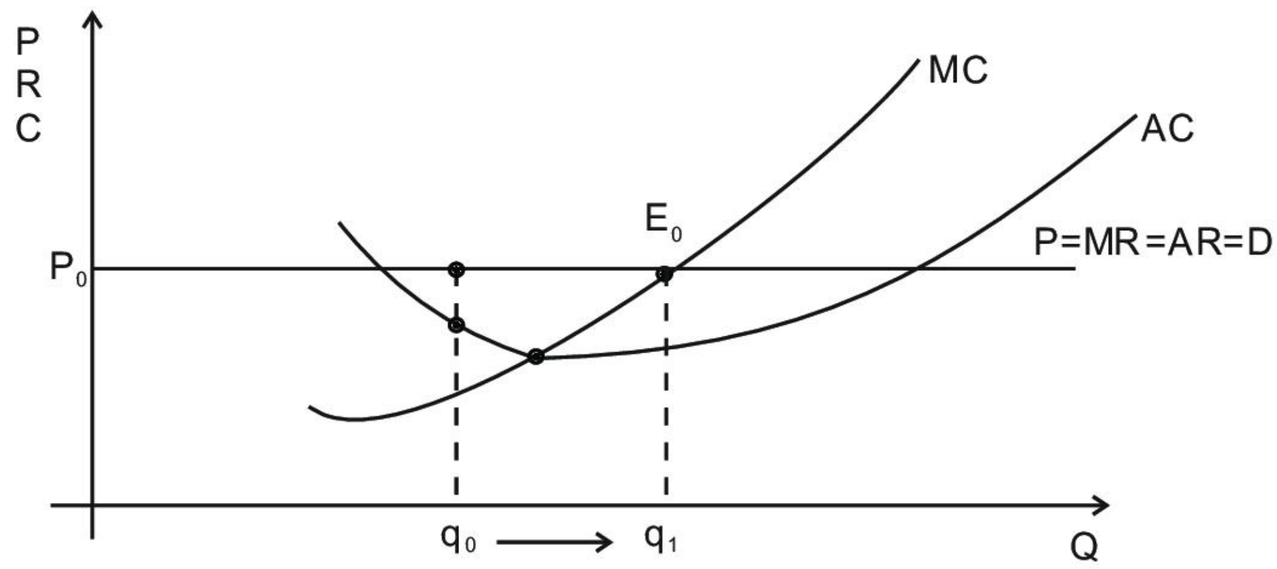
3. D

When a cartel forms, every firm in it will be allowed a set quota of quantity at a given price. In this way, the participating firms will not be able to produce at MR = MC and hence they will not be able to maximizing profits. However, the newer firms will not be bound by cartel and produce where MR = MC and it will take advantage and maximize its profits. This can be shown in the diagram below.



As seen from diagram, the firm bound by cartel will produce at q_o (the allocated quota) and hence earn lower profit. However the newer firm will produce at q_1 where MR = MC and maximize its profits in the short run.

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7.3 Oligopoly - determinants of price collusion

1. M/J 06/P32/Q13, O/N 15/P31/Q13, O/N 11/P32/Q12
What will increase the likelihood that the firms in an industry will collude to maximise their joint profits?

A The industry consists of a large number of producers.
B The industry has many differentiated products.
C The industry is characterised by rapid technological change.
D There are significant barriers to prevent new firms entering the industry.

2. M/J 16/P31/Q7
What is most likely to result in non-cooperative behaviour between producers in an oligopoly market?

A barriers to entry of new firms
B ease of detection of prices being set by other firms
C product differentiation between firms in the industry
D stability in demand and costs of production over time

3. O/N 15/P31/Q12
In the UK, four bus companies control more than two-thirds of the market. Critics claim that the big four agree to fix prices on some routes to maximise revenue whilst temporarily lowering prices on other routes to drive out smaller competitors.
Which anti-competitive practices are the big four bus companies accused of?

A collusion and limit pricing
B collusion and predatory pricing
C limit pricing and price discrimination
D price discrimination and predatory pricing

4. O/N 14/P32/Q12
When is collusion likely to be successful in an oligopolistic market?

A Barriers to entry are relatively low.
B Firms have accurate information about each other's output levels.
C There are significant differences in the firms' costs of production.
D There are significant fluctuations in demand from one period to another.

5. M/J 13/P32/Q13
Which change would make it easier for a cartel to operate effectively?

A an increase in competition from closely related industries
B an increase in the number of firms in the industry
C an increase in the range of products made by cartel members
D an increase in the stability of the market for its products

6. O/N 12/P33/Q12
Some of the firms in an industry agree to set the same price. What might threaten the continuation of the agreement?

A differences in cost structures between firms
B homogeneity of the product
C the inclusion of the dominant firm in the industry
D significant barriers to entry into the industry

7. M/J 02,O/N 08/P32/Q13
Which of the following characteristics is most likely to be present when collusion occurs between firms in an industry?

A low barriers to entry
B a large number of firms
C the absence of significant economies of scale
D product homogeneity

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8. O/N 01/P32

Some of the firm's in an industry agree to set the same price. What would threaten the continuation of the agreement?

A homogeneity of the product.

B the inclusion of the dominant firm in the industry.

C differences in cost structures between firms.

D significant barriers to entry in the industry.

9. O/N 95,M/J 00/P32

What would facilitate collusion between firms in an oligopolistic industry?

A an increase in the number of firms.

B large fluctuations in demand.

C rapid changes in technology.

D a standardized product.

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Answers Section

1. D
If there are a large number of producers then it is possible that some firms do not wish to collude, and this may reduce chances of a collusion. If there are differentiated products then each firm will argue a different price band based on technical specifications and brand image, thus reducing the chances of a collusion. If there is rapid technological change then firms may have different costs of production based on machinery used and therefore a price where one firm earns a profit would make another earn a loss making it difficult for them to agree on price and output. If there are significant barriers to entry, then the current producers can ensure that even if they decide to collude to earn abnormal profits, due to barriers to entry competition will not increase.

2. C
Non-cooperative (non-collusive) behaviour between producers in an oligopoly market may arise when there are lower barriers to entry, and stability in demand and costs of production over time. Ease of detection of prices being set by other firms will not affect the cooperative or non-cooperative behavior. Hence, product differentiation between firms in the industry will help them to set their own prices and they will operate independently leading to non-cooperative behaiour.

3. B
If some firms agree to fix prices to maximise revenue , it is price collusion. While temporarily lowering prices to drive out smaller competitors is predatory pricing strategy.

4. B
Collusion likely to be successful in an oligopolistic market when:
There are only a few firms, all well-known to each other.They are open with each other about costs and production methods, have similar production methods and average costs, produce similar (homogeneous) products, and thus can more easily reach agreements on price, have high barriers to entry, when market is stable and there are no government measures to curb collusion.or there is one dominant firm.

5. D
A cartel is when firms in an industry collude together to operate as one firm or a monopolist. So an increase in competition from closely related industries will increase pressure on cartel, thus forcing it to lower prices, which may make cause the cartel to break up. An increase in the number of firms in the industry has a similar impact, since more firms mean that customers could easily buy from firms that are not part of the cartel then the cartel would lose its power. An increase in the range of products made by cartel members will make it difficult for members to agree on the set of prices to agree on different goods thus increasing the chances of dissolution. An increase in stability of the market for its products, will make it easier for the cartel to make decisions on output and pricing thus helping it operate more effectively, so D is the right answer.

6. A
Continuation of collusion likely to be threatened in an oligopolistic market when there are differences in cost structures between firms. Some firms may make profits and some may bear losses at agreed price and therefore more chances of collapse of agreement.

7. D
Collusion is more successful when products of same nature are being sold.

8. C
According to questions, A, B, and D will also lead to stability of agreement. Difference in cost structures will make it difficult to set same prices for all firms and hence threaten the continuation of the agreement.

9. D
A collusion (cartel) will be strengthened if there are homogenous products which will help to standardize the rules and restrictions.

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7.4 Oligopoly-Growth of firms (Mergers and integration)

1. M/J 16/P33/Q10

The data below relates to a firm over three years.

	year 1	year 2	year 3
sales ($m)	120	140	135
pre-tax profit ($m)	30	25	10
net capital employed (index no. year 1)	100	95	120

Over which period could the firm definitely be said to have grown in size?

	between years 1 and 2	between years 2 and 3	between years 1 and 3
A	no	no	yes
B	no	yes	no
C	yes	no	no
D	yes	yes	yes

2. O/N 15/P31/Q10

A firm takes over one of its main competitors.
What is likely to happen to the price elasticity of demand for the firm's product and what will be the impact of the takeover on its average cost of production?

	price elasticity of demand	average cost
A	decreases	increases
B	decreases	uncertain
C	increases	increases
D	increases	uncertain

3. O/N 15/P33/Q10

What must a firm do to achieve internal growth?

A increase productive capacity
B issue new shares
C launch new products
D retain some of its profits

4. O/N 14/P32/Q9

In 2009, the United Kingdom's largest grocery supermarket, Tesco plc, created Tesco Bank offering a range of financial services to customers.
This is an example of

A external growth and horizontal merger.
B external growth and vertical merger.
C internal growth and diversification.
D internal growth and market concentration.

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5. O/N 13/P31/Q9

Firms can grow internally or externally.
Which strategy is an example of a commercial bank growing internally?

A the bank cutting its costs by rationalising its structure

B the bank merging with another commercial bank

C the bank opening new branches

D the bank taking over an insurance company

6. M/J 06/P3/Q12

An example of forward vertical integration for a computer manufacturer would be a merger with

A another computer manufacturer.

B a computer retailer.

C a silicon chip manufacturer.

D a software developer.

7. M/J 18/P33/Q9, O/N 96/P3

Which of the following is an example of horizontal integration?

A A bank takes over a travel agent.

B A car manufacturer buys up a component supplier.

C A cotton mill doubles its output of existing products.

D Two breweries merge.

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Answers Section

1. A
A firm's growth happens only if it employed more net capital in order to increase it capacity. It may be done internally or externally by merging with another firm.

2. B
As there will be lesser substitutes now and therefore demand will be relatively inelastic. However, average cost may increase or decrease depending upon whether the firm reap economies of scale or start facing diseconomies of scale.

3. A
Growth of a firm means an increase in productive capacity of the firm. Internal growth refers to when a firm opens more of its stores or outlets whereas external growth is mainly through mergers and acquisitions.

4. C
Internal growth refers to when a firm opens more of its stores or outlets whereas external growth is mainly through mergers and acquisitions. So if Tesco created Tesco bank then that would be internal growth since it did not create Tesco bank by merging or taking over another firm. This is diversification since the firm is primarily a grocery supermarket but now it is offering financial services to customers, which is a different market. So option C is correct.

5. C
Internal growth happens when a firm expands its capacity without merging with another firm. If a bank merges with another bank, it is horizontal merger and if merges with an insurance company, it will be conglomerate and both of these will be the form of external growth. If the bank is cutting its costs by rationalising its structure, it is not a growth of bank. Opening new branches will increase the capacity of bank without merging with another bank and therefore will be an example of internal growth.

6. B
Forward vertical integration of manufacturer occurs when the firm combines with another firm which is customer of its products. In this case, the manufacturer is in secondary level of production. To make a forward integration, the manufacturer needs to integrate with a firm in tertiary level of production i.e. the retailer.

7. D
Horizontal integration occurs when a firm takes over or merges with a firm in the same industry at same stage of production. Apart from option D, all options show an integration of different industries

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7.5 Oligopoly-Multiple topics of chapter 7

1. M/J 15/P33/Q11

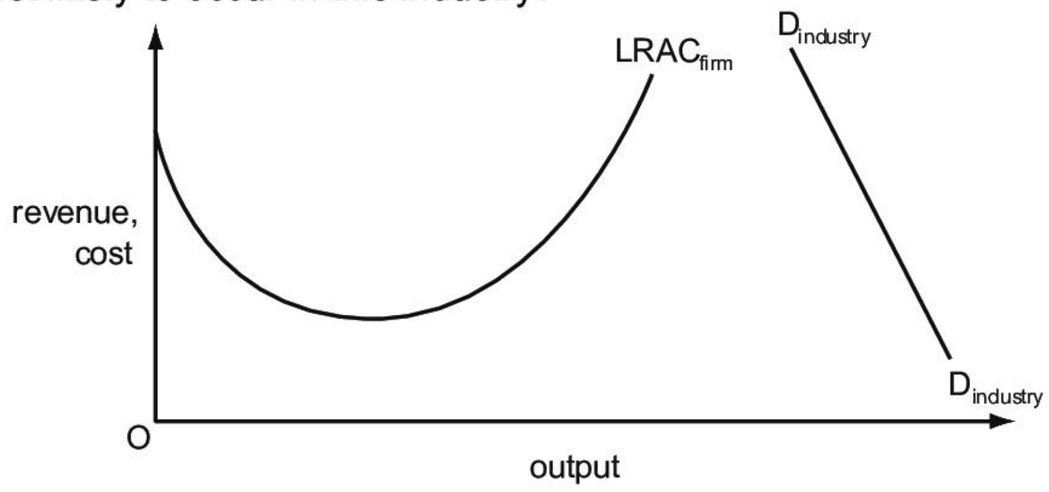
What is the necessary characteristic of an oligopolistic industry?

A mutual interdependence
B non-price competition
C price leadership by a dominant firm
D price rigidity

2. M/J 09/P3/Q11

The diagram shows the long-run average cost curve of a typical firm in an industry and the demand curve for the industry's product.

Which market structure is most likely to occur in this industry?



A monopolistic competition
B monopoly
C oligopoly
D perfect competition

3. M/J 15/P33/Q14

The table shows the costs of two milk producers.

	costs per litre
firm X	$9
firm Y	$7

The price received by producers is $12 per litre. Both firms have been given quotas allowing them to produce 200 litres per day.

Assuming constant costs of production and zero costs of entry and exit, what is the maximum price firm Y would be willing to pay (per day) to buy X's quota?

A $400 **B** $600 **C** $1000 **D** $1400

4. O/N 14/P33/Q14

The table shows the costs of two milk producers.

	cost per litre ($)
firm X	10
firm Y	7

The price received by producers is $12 per litre. Both firms have been given quotas allowing them to produce 200 litres per day.

Firm Y asks firm X if it can buy firm X's quota.

Assuming constant costs of production and zero costs of entry and exit, what is the minimum amount (per day) firm X would be willing to accept to sell its quota to firm Y?

A $400 **B** $600 **C** $1000 **D** $2400

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5. O/N 08/P3/Q13

The table shows the costs of two milk producers.

	Costs per litre
firm X	$9
firm Y	$7

The price received by producers is $10 per litre. Both firms have been given quotas allowing them to produce 200 litres per day. Firm X sells its quota to firm Y.
Assuming constant costs of production and zero costs of entry and exit, what price did firm Y pay (per day) to buy X's quota?

A $200
B $600
C $700
D between $200 and $600

6. O/N 11/P32/Q3

To prevent a surplus of milk, each milk producer is given a production quota which specifies the volume of milk he is allowed to supply. Initially the quotas are not tradable, but then trade in quotas is allowed. Who would gain or lose when trade in quotas takes place?

	purchasers of quotas	sellers of quotas
A	gain	gain
B	gain	lose
C	lose	gain
D	lose	lose

7. M/J 15/P32/Q16

A country's steel producers are members of a cartel. Each member is allocated a production quota and initially produces the maximum allowed under its quota.
What will be the effect on productive efficiency and on the industry's profits if the producers are allowed to trade the quotas amongst themselves?

	effect on productive efficiency	effect on profits
A	improvement	increase
B	improvement	no change
C	no change	increase
D	no change	no change

8. O/N 14/P32/Q15

A country's steel producers are members of a cartel. Each member is allocated a production quota, and initially produces the maximum allowed under its quota.
What will be the effect on total steel production and the industry's total profits of allowing the producers to trade the quotas among themselves?

	effect on production	effect on total profits
A	increase	increase
B	increase	no change
C	no change	increase
D	no change	no change

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9. M/J 15/P31/Q16

In order to reduce milk production, all producers are given a quota which limits the amount of milk each producer is allowed to produce. Initially, the quotas cannot be traded. What will be the effect on the total volume of milk production and on the overall profits of milk producers if they are allowed to trade the quotas among themselves?

	effect on total volume	effect on profits
A	increase	increase
B	increase	decrease
C	unchanged	increase
D	unchanged	decrease

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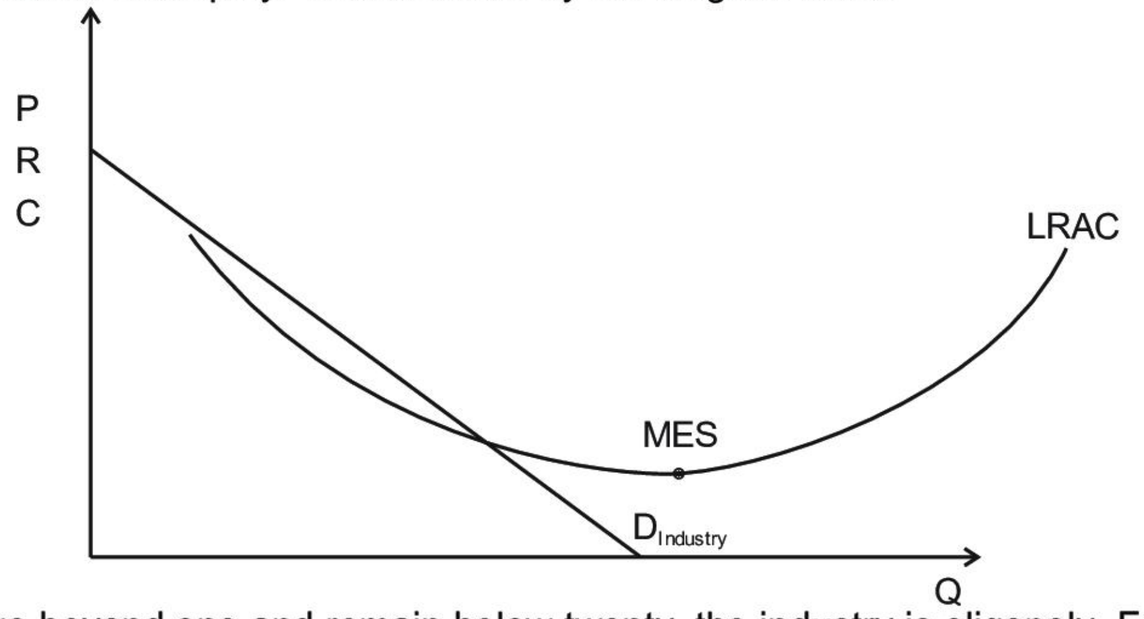
Answers Section

1. A

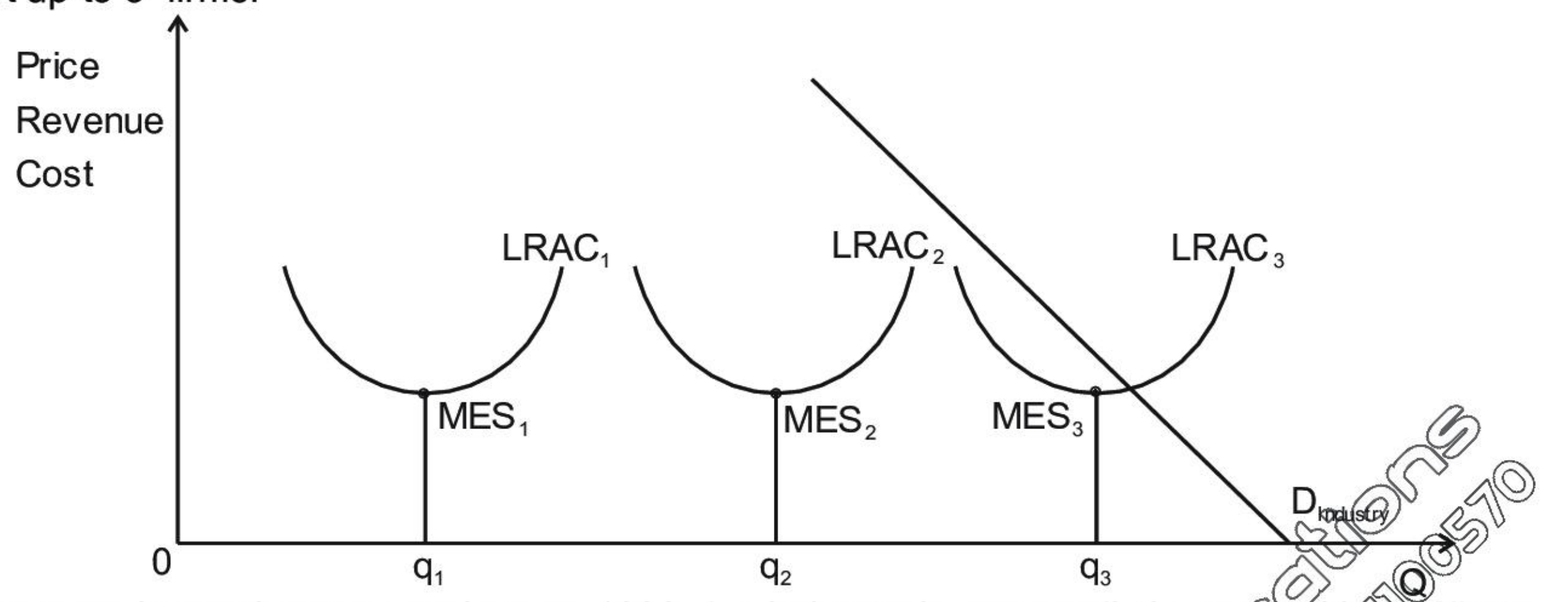
Non-price competition will not exist if the product is homogeneous, price leadership is restricted to collusive models only and price rigidity is only linked to non-collusive model of kinked demand curve. However, in all models of oligopoly, mutual interdependence is necessary characteristic of an oligopolistic industry.

2. C

The diagram shows the relation between LRAC and demand curve of industry's product. The purpose of the diagram is to show the number of efficient firms an industry can support. This is sown by the number of minimum efficient rules of LRAC of different firms present before one LRAC meets the demand. If a single LRAC is sufficient to meet the demand curve, then the industry is natural monopoly. This is shown by the diagram below



If the no of LRAC of firms go beyond one and remain below twenty, the industry is oligopoly. For example, the industry is below can support up-to 3 firms.



Similarly if the firms go beyond twenty and up-to 1000 the industry is monopolistic competition. Whereas there are hundreds of thousands of firms in perfect competition.

According to question the industry is oligopoly because the industry can support up-to two efficient firms. The second LRAC will intersect the demand curve of industry.

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3. C

The table below helps to explain the situation.

X	Y
P = AR = $12 AC =$9 Average Profit=12-9=$3 Q=200 Total Profit=3 x 200=$600	P=AR=$12 AC = $7 Average Profit =12-7= $5 Q= 200 Total Profit = 5 x 200 = $1000

As per statement, the average profits and total profits of X and Y are calculated above. In this case if X sells its quota to Y, the quantity will be unchanged. The current earnings of X is $600. Therefore, it will only sell its quota if it receives a revenue greater than $600 because it will be favourable for X. Otherwise it will not sell its quota. From the next 200 units, if Y buys this quota, it will be able to earn $ 1000 because of higher efficiency and lower costs. However, firm Y will only buy this quota if the maximum price is $ 1000. A price above $1000 will reduce the existing profits of Y.

4. A

The table below helps to explain the situation.

X	Y
P = AR = $12 AC =$10 Average Profit=12-9=$2 Q=200 Total Profit=2 x 200=$400	P=AR=$12 AC = $7 Average Profit =12-7= $5 Q= 200 Total Profit = 5 x 200 = $1000

As per statement, the average profits and total profits of X and Y are calculated above. In this case if X sells its quota to Y, the quantity will be unchanged. The current earnings of X is $400. Therefore, minimum amount (per day) firm X would be willing to accept will be $400 to sell its quota to firm Y.

5. D

The table below helps to explain the situation.

X	Y
P = AR = $10 AC =$9 Average Profit=10-9=$1 Q=200 Total Profit=200 x 1=200	P=AR=$10 AC = $7 Average Profit =10-7= $3 Q= 200 Total Profit = 3 x 200 = 600

As per statement, the average profits and total profits of X and Y are calculated above. In this case if X sells its quota to Y, the quantity will be unchanged. The current earnings of X is 200$. Therefore, it will only sell its quota if it receives a revenue greater than 200 because it will be favourable for X. Otherwise it will not sell its quota. From the next 200 units, if Y buys this quota, it will be able to earn $ 600 because of higher efficiency and lower costs. However, firm Y will only buy this quota if the costs less than $ 600. A price above 600$ will reduce the existing profits of Y. Therefore the price agreeable to both parties will be anywhere between $ 200 and $ 600.

6. A

In case of trade of qouta, seller of quota will get a better revenue than its own sales and purchaser of quota will be able to buy milk at a cost lower than its sales revnue and therefore both will gain from it.

7. A

In case of trade of qouta, a firm with higher average cost will sell the quota and will get a better revenue than its own sales and purchaser of quota will have lower cost than seller of quota and will buy steel at a cost lower than its sales revnue and therefore total profit of industry and productive efficiency will increase.

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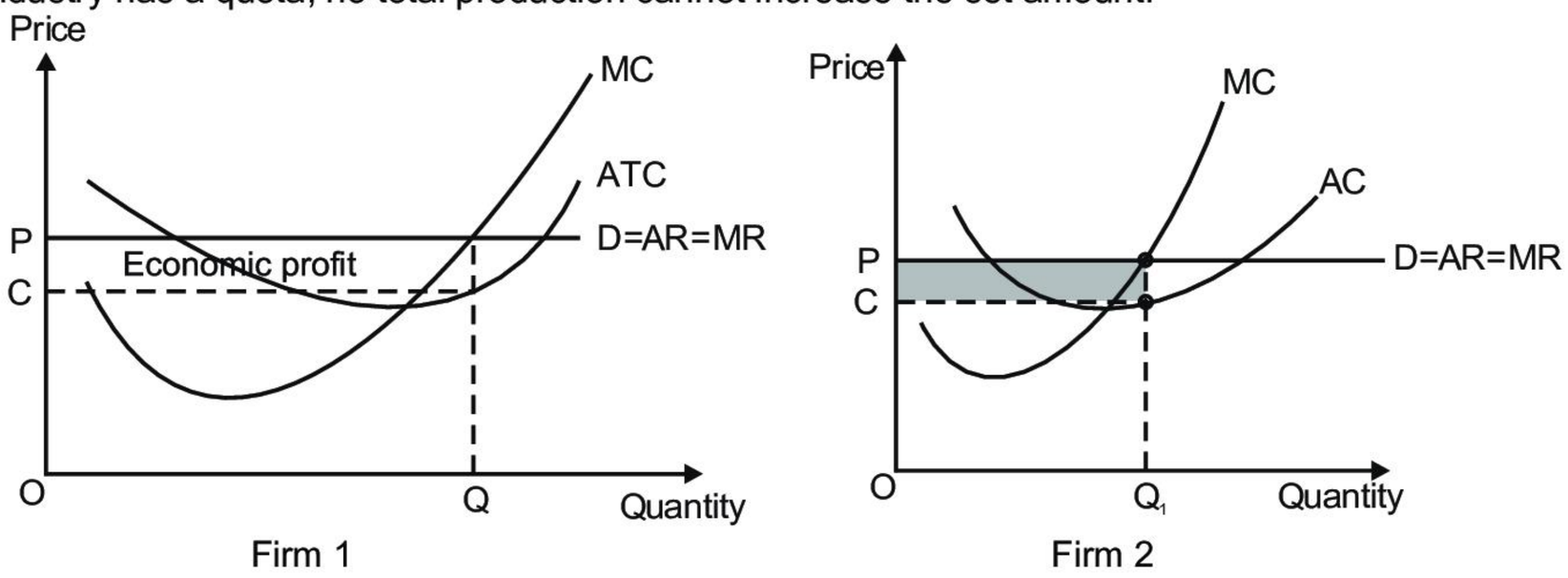
8. C

Since the industry has a quota, no total production cannot increase the set amount.



Consider two firms, Firm 1 is producing at a point above output OQ and the other one is producing below output OQ_E. Neither firm is maximizing profits. If they're allowed to trade quotas then the Firm 1 would produce reduce its production to output OQ by selling its quotas to Firm 2 which can increase its production to output OQ_E. So even though total production remains the same, the firms earn more profits.

9. C

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Unit 8 Comparison of market structures

8.1 Comparison of market structures

1. M/J 16/P31/Q6
A single firm in an industry alters production, but its actions have no effect on the market price of the good.
If the price always clears the market, how would an economist classify this industry?

A imperfect competition
B monopoly
C oligopoly
D perfect competition

2. M/J 16/P33/Q6
For which market structure can a market supply curve be constructed?

A imperfect competition
B monopoly
C oligopoly
D perfect competition

3. M/J 16/P32/Q13
What is likely to have its cause in the separation of ownership and control in a firm?

A contestable markets
B diseconomies of scale
C principal-agent problem
D prisoner's dilemma

4. O/N 17/P33/Q5, O/N 13/P33/Q12
The table shows some of the assumptions of perfect competition and monopolistic competition.
Which pairing is correct?

	perfect competition	monopolistic competition
A	identical products	freedom of entry and exit
B	barriers to entry	differentiated products
C	large number of firms	small number of firms
D	differentiated products	barriers to entry

5. O/N 13/P32/Q11
The table shows some of the assumptions of perfect competition and monopolistic competition.
Which pairing is correct?

	perfect competition	monopolistic competition
A	barriers to entry	small number of firms
B	differentiated products	large number of firms
C	freedom of entry and exit	barriers to entry
D	large number of firms	differentiated products

6. M/J 09/P32/Q9, O/N 00/P32
Which of the following is a feature of monopolistic competition, but not of perfect competition?

A a large number of buyers.
B product differentiation.
C the existence of abnormal profits.
D the existence of barriers to entry

7. M/J 15/P32/Q11
The firms in an industry all produce a homogeneous product, but each firm is able to influence the price it charges for its own product.
In which market structure do the firms operate?

A perfect competition
B monopolistic competition
C oligopoly
D monopoly

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8. O/N 02/P3/Q8

In which of the following market situations will a firm take account of the reactions of its competitors before deciding to cut its price?

A monopoly
B monopolistic competition
C oligopoly
D perfect competition

9. O/N 13/P32/Q13

What makes it most likely that a firm's profits will be volatile and subject to substantial fluctuations?

A Fixed costs are a high percentage of total costs.
B It produces a diversified range of products.
C It produces basic consumer products.
D It sells its product in a number of different markets.

10. M/J 13/P32/Q1

In which market situation will a firm take account of the reactions of its competitors before deciding to cut its price?

A monopoly
B monopolistic competition
C oligopoly
D perfect competition

11. M/J 18/P33/Q6, O/N 12/P31/Q12

Firms X, Y and Z are profit maximising private firms.
X operates in a perfectly competitive industry, Y in a monopolistically competitive industry and Z is a single monopolist.
Which statement is correct?

A Only X satisfies the condition for allocative efficiency.
B Only X faces no barriers to entry in the long run.
C Only Y and Z can make a supernormal profit in the long run.
D Only Z is a price maker.

12. M/J 12/P31/Q13

An industry moves from monopolistic competition to oligopoly.
How will this affect barriers to entry and the degree of interdependence between firms?

	barriers to entry	interdependence between firms
A	strengthen	strengthen
B	strengthen	weaken
C	weaken	strengthen
D	weaken	weaken

13. O/N 04/P3/Q14

In which way does monopolistic competition differ from perfect competition?

A Average revenue exceeds average cost in long-run equilibrium.
B Barriers exist to the entry of new firms.
C Marginal revenue exceeds marginal cost in long-run equilibrium.
D Products are differentiated.

14. M/J 08/P3/Q9

The table shows some of the assumptions of perfect competition and monopolistic competition.
Which pairing is correct?

	perfect competition	monopolistic competition
A	barriers to entry	small number of firms
B	differentiated products	large number of firms
C	freedom of entry and exit	differentiated products
D	large number of firms	barriers to entry

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15. M/J 04/P3/Q7

An industry consists of a large number of firms, all of which produce an identical product. What could explain why the demand curve facing each individual firm is downward-sloping?

A diminishing marginal utility

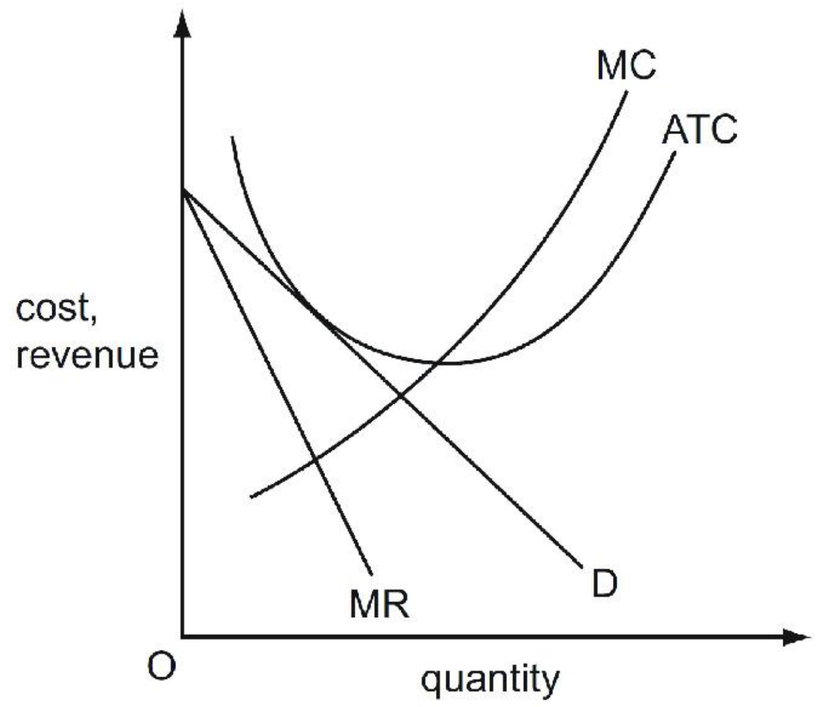
B freedom of exit and entry

C imperfect knowledge on the part of consumers

D a limit on the amount consumers have available to spend

16. M/J 16/P32/Q9

The diagram shows the cost and revenue curves of a firm.



What does the diagram represent?

A a firm in monopolistic competition making normal profit

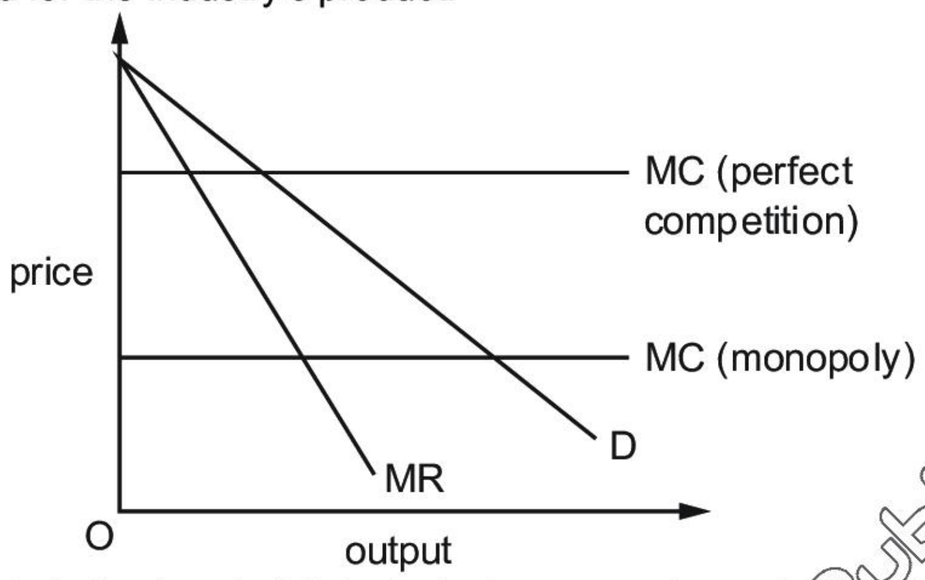
B a firm in monopolistic competition making short-term losses

C a firm in perfect competition at long-run equilibrium

D a monopoly making abnormal profits

17. M/J 14/P31/Q12

The diagram shows the change in an industry's cost of production when it moves from perfect competition to monopoly. There is no change in the demand for the industry's product.



What effect will the change in market structure in this industry have on price, output and consumer surplus?

	price	output	consumer surplus
A	increase	increase	reduce
B	increase	reduce	reduce
C	reduce	increase	increase
D	reduce	reduce	increase

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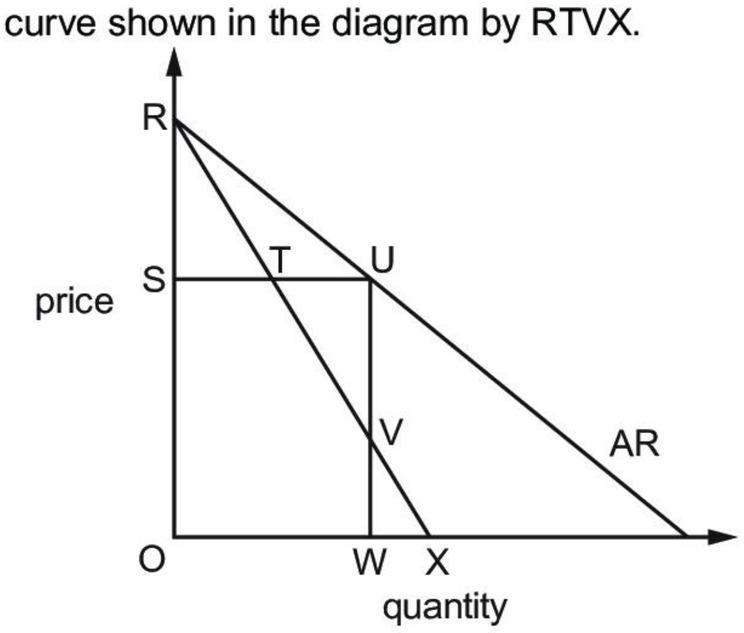
18. M/J 13/P31/Q10

A perfectly competitive industry becomes a profit-maximising monopoly. The marginal cost curve of the monopolist is identical to the supply curve of the perfectly competitive industry.
How will output and price be affected?

	output	price
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

19. M/J 14/P31/Q17

A monopolist has a marginal revenue curve shown in the diagram by RTVX.

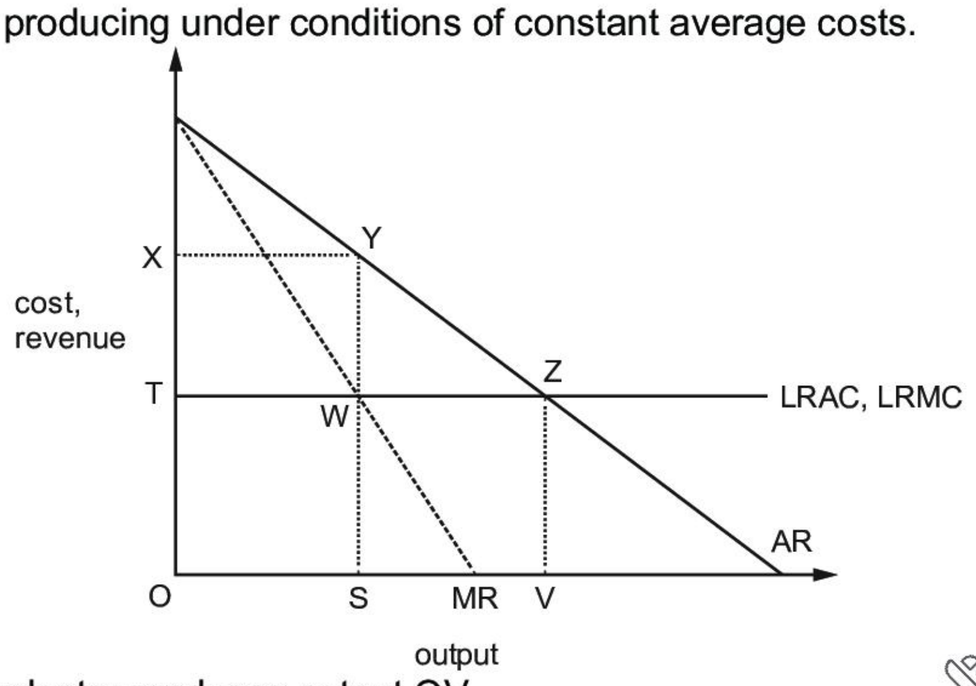


What will be the monopolist's new marginal revenue curve if the government introduces a maximum price, OS?

A RTVW **B** RUVX **C** STVX **D** SUVX

20. O/N 14/P32/Q11

The diagram shows an industry producing under conditions of constant average costs.



Under perfect competition, the industry produces output OV.
Which area measures the increase in the industry's profits if it were to become a monopoly?

A XYSO **B** XYWT **C** XYZT **D** YZW

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Answers Section

1. D
A market which is price taker is a perfect competition market where actions of single firm doesn't affect the market.

2. D
Only in perfect competition firms are price takers and sell at market price and therefore it is possible to construct market supply by taking the horizontal sum of individual firm's supply in perfect competition only.

3. C
Principal-agent problem means managers and directors (agents) or controllers make decisions on the behalf of shareholders (principal) or owners, hence, shows separation of ownership and control in a firm.

4. A
Both perfectly and monopolistically competitive markets have freedom of entry and exit and perfect competitive markets have identical products.

5. D
In perfect competition, there are a large number of firms, which is what forces firms to be price-takers with a perfectly elastic demand curve. Firms in monopolistic competition produce differentiated products, which is what allows firms under monopolistic competition to be price-makers, despite there being a large number of sellers.

6. B
The significant difference between perfect and monopolistic competition is that perfectly competitive firm's produces homogenous product and are price takers. In monopolistic competition all firms are price makers and produce differentiated products usually.

7. C
Oligopoly firms may have homogeneous product but will be price maker. Perfect competition can not influence the price and monopoly or monopolistic competition will have unique and differentiated products respectively.

8. C
In oligopoly, linked demand curve helps to explain the effect on pricing decisions of a firm by competitor's actions.

9. A
If a large proportion of total cost is fixed cost then profits may be subject to significant fluctuations. In the case of variable cost if the firm sells less then it produces less so it incurs lower variable cost and therefore profits remain relatively stable. But with fixed cost, its profits depend mainly on total revenue. So if total revenue falls, then total cost will change by little causing a substantial drop in profits. Selling a diversified range of products means spreading out the risks; a fall in the profits earned through one product may be offset by surging demand for another, so profits remain steady. Falling revenue experienced in one market may be covered if the firm enjoys high revenue growth in another market leading to constant profits. Demand for basic consumer products such as wheat, rice, and utilities remains the same so if total revenue doesn't change then profits don't fluctuate.

10. C
In a monopoly there is only one firm so there are no competitors. In monopolistic and perfect competition there are too many firms to carry out strategic behavior therefore most firms concentrate in becoming efficient and maximizing profits. Since there are only a few firms in an oligopoly, a change in the price by one firm could cause other firms to react since their profits may be adversely affected. So the oligopoly firm take account of the reactions of its competitors before deciding to cut its price.

11. A
For allocative efficiency P=MC which is held true only in perfect competition. All imperfect markets are allocatively inefficient.

12. A
Oligopoly industry have higher barriers to entry and there is more interdependence among the firms in oligopoly market.

13. D
Monopolistic and perfectly competitive firms earn normal profits in the long run. Moreover there are no barriers to entry and exit for both firms. The firms maximize profits in both short run and long run, i.e., MR = MC. The only difference is that in perfect competition, firms sell homogeneous products whereas in monopolistic competition the firms can sell differentiated products as well.

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14. C

Monopolistic and perfectly competitive firms earn normal profits in the long run. Moreover there are no barriers to entry and exit for both firms. The firms maximize profits in both short run and long run, i.e., MR = MC. The only difference is that in perfect competition, firms sell homogeneous products whereas in monopolistic competition the firms can sell differentiated products as well.

15. C

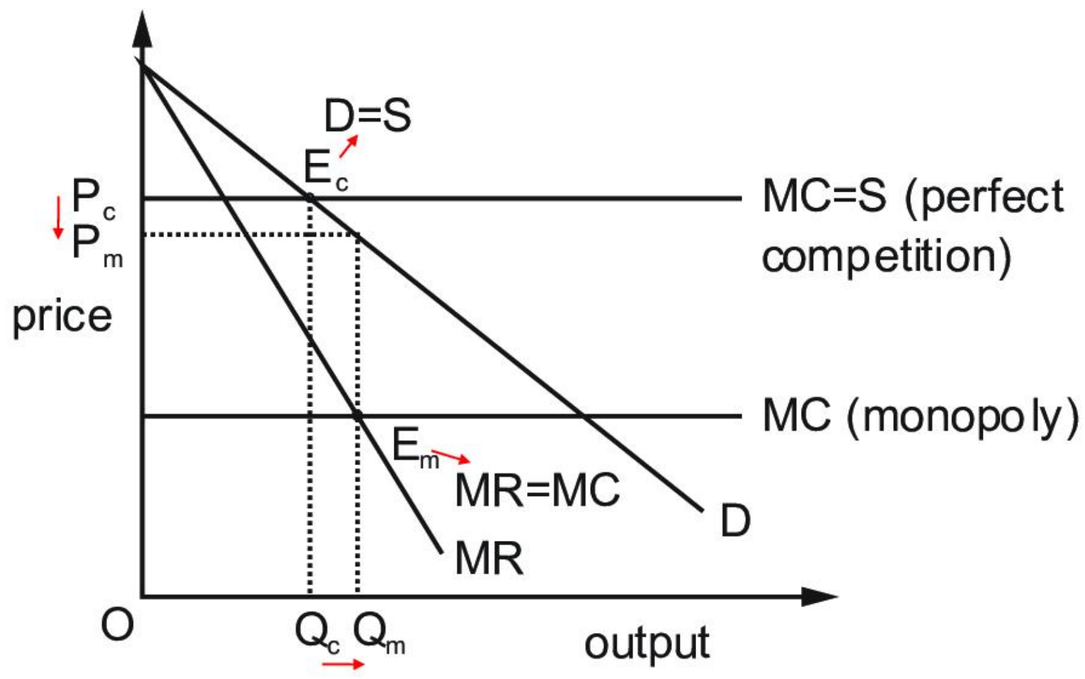
''The industry consists of large number of firms, all of which produce an identical product.'' In this case, the industry can either be monopolistic competition or perfectly competitive industry. However, the individual demand curve of a perfectly competitive firm is horizontal rather than downward sloping. Hence, the industry is monopolistic competition whose demand curve is downward sloping for each firm. As freedom of exit and entry is common both to perfect competition and monopolistic competition, therefore this option cannot be right choice. The limit of consumers have available to spend is not taken into consideration for demand curve of the firm. In monopolistic competition, all firms are price makers and there is imperfect knowledge on part of customers. This characteristic is unique to monopolistic competition and helps to explain the downward sloping demand curve of a firm operating under monopolistic competition.

16. A

As MR and demand curves are both downward sloping so it cant be a perfect competition. AR=AC in this diagram so it is making normal profits. Hence, the firm is in monopolistic competition making normal profit is correct option.

17. C

In perfectly competitive industry, equilibrium is established where D=S as shown in the diagram below at point E_c with price P_c and output Q_c.



However, in monopoly, equilibrium is established where MR=MC as shown in the diagram below at point E_m with price P_m and output Q_m. Hence, price will fall, output will increase and there will be an increase in consumer surplus.

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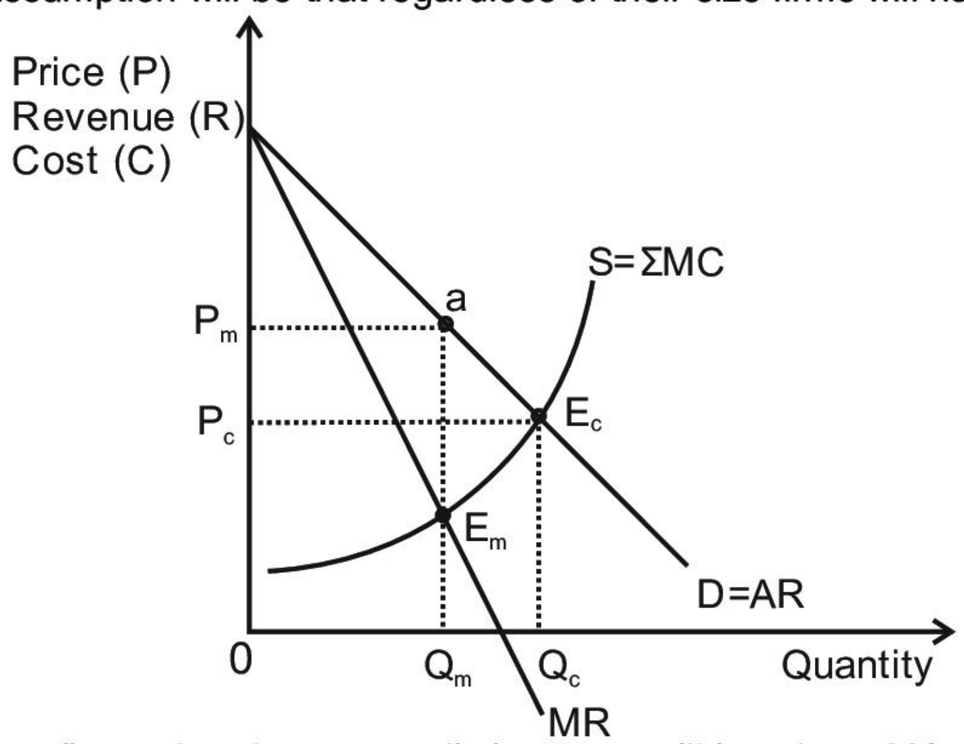
18. B

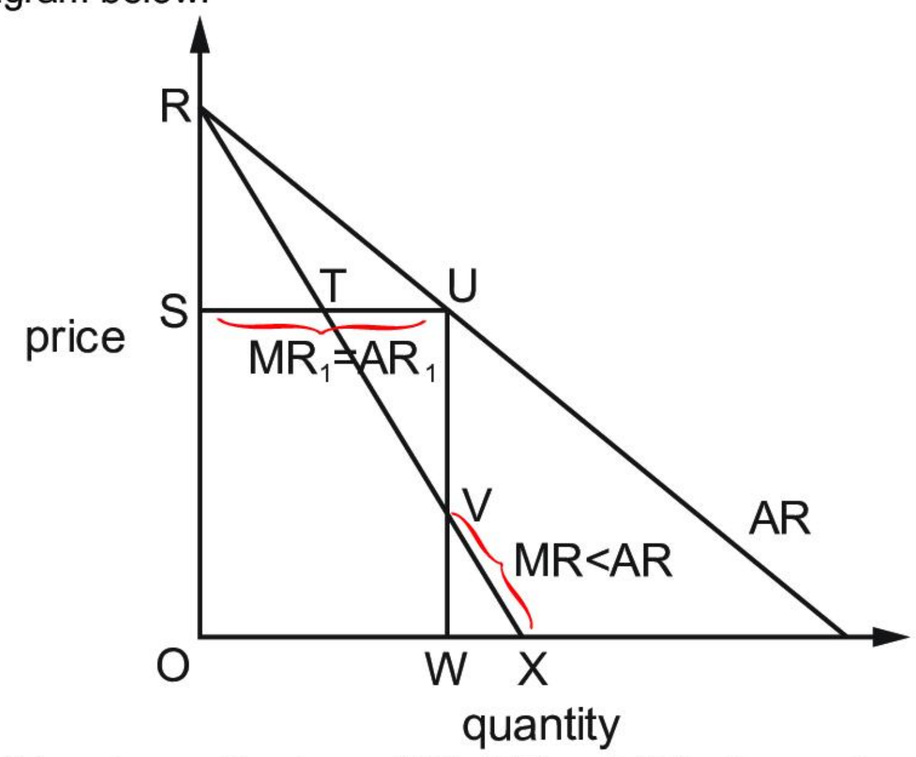
The most important underlying assumption will be that regardless of their size firms will have the same cost curves.



It can be observed from the above figure that the monopolist's output will be where MC=MR, which is output Q_m and the price charged will be P_m.A perfectly competitive industry produces at a point where D=S (as D=AR while S=ÓMC, where S=ÓMC shows the summation of all MC curves of all firms in the industry) or AR=MC. Therefore, the price charged will be P_c and output will be Q_c. This proves that a monopolist charges consumers a higher price and produces a lower output.

19. D

As maximum price limit is set at OS, therefore at price OS and above monopolist will be price taker and will face MR=AR as shown by by line SU in the diagram below:



However, any price below than OS and quantity above OW, MR and AR will remain same as shown by VX. Hence MR will be now OSVX.

20. B

As the diagram shows a perfectly competitive firm produces at a point where P=MC=AC. So in this curve LRAC=LRMC will need to intersect the AR curve which is equal to price. A monopoly on other hand produced where MR=MC. This is at output OS, the price is set by the AR curve will be OX. Under perfect competition economic profits are zero in the long run. In a monopoly total revenue is output x price which is area 0XYS. Total cost will be average cost x output so that will be area OTWS. The difference is area XYWT which is profit in this case if the industry becomes a monopoly.

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8.2 Concentration ratio

1. M/J 16/P33/Q8

In September 2008 Google introduced its Chrome web browser. The table shows the market percentage (%) share of different web browsers between September 2008 and June 2014.

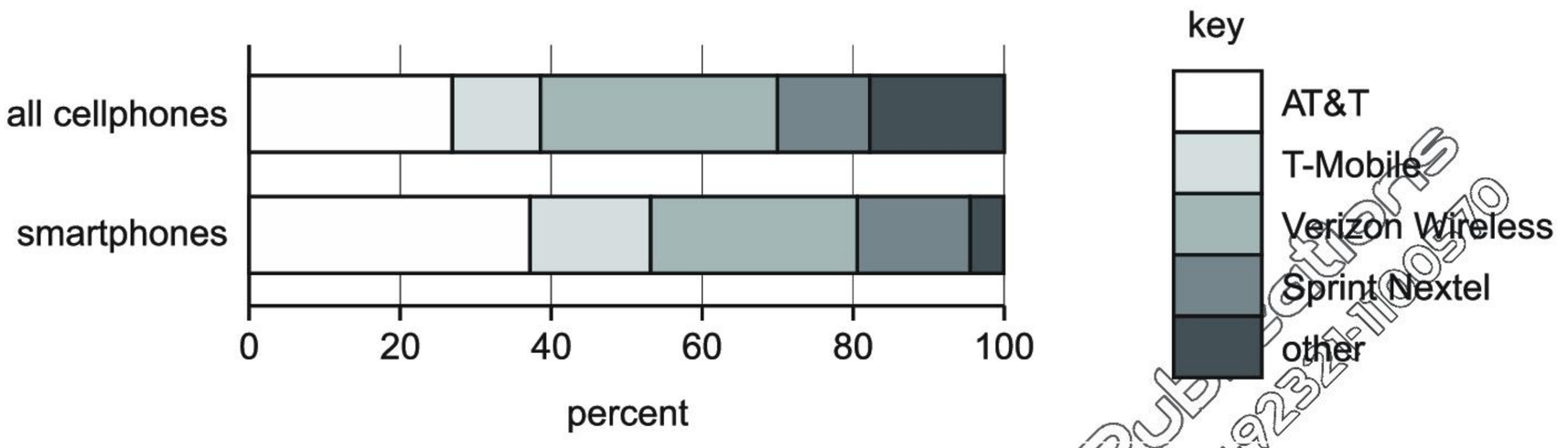
web browser	% share in September 2008	% share in June 2014
Internet Explorer	67.2	21.0
Firefox	25.8	17.9
Safari	3.0	10.3
Opera	2.8	1.8
Chrome	1.0	45.5
others	0.2	3.5

What can be concluded from the table about the change in market concentration ratios between 2008 and 2014?

	5-firm concentration ratio	3-firm concentration ratio
A	fell	fell
B	fell	rose
C	rose	fell
D	rose	rose

2. O/N 14/P33/Q11

The diagram shows the percentage market share of mobile network operators in the US in January 2011.



What can be concluded from the diagram?

A AT&T has the largest share of both markets.

B Small firms are unable to survive in either market.

C The four firm concentration ratio is greater than 80% in both markets.

D The market for smartphones is more competitive than the market for all cellphones.

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3. M/J 12/P32/Q10

The five firm concentration ratio for an industry changes from 50 % to 60 %.
Which statement about the industry is correct?

A Each firm has become more efficient.

B The industry has become more oligopolistic.

C The industry has benefited from external economies of scale.

D The industry now has fewer barriers to entry.

4. O/N 12/P32/Q11

What is meant by a four firm concentration ratio of 25%?

A The largest four firms' market share totals 25%.

B The largest four firms have a market share of 25% each.

C There are only four firms in the industry.

D The largest firm has a 25% market share.

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Answers Section

1. A

The concentration ratio of an industry measures the output of an industry's largest firm (or firms) as a proportion of the industry's total output. It can be calculated by the following formula:

$$\text{Concentration ratio} = \frac{\text{output of industry's largest firms}}{\text{total output of industry}} \times 100$$

	2008	**2014**
5-firm concentration ratio	$= \frac{67.2+25.8+3+2.8+1}{100} \times 100$ $= 99.8\%$	$= \frac{21+17.9+10.3+1.8+45.5}{100} \times 100$ $= 96.5\%$
3-firm concentration ratio	$\frac{67.2+25.8+3}{100} \times 100 = 96\%$	$= \frac{21+17.9+45.5}{100} \times 100 = 84.4\%$

2. C

AT&T has the largest share of smart phones market bu Verizon Wireless has the largest share of all phones market . Small firms are labeled as others and they survived in both markets. There are same number of big firms in both markets and there is no other evidence to prove that which market is more competitive. As it can be infered from the diagram that four big firms have concentration ratio greater than 80% in both markets and therefore is the true option.

3. B

If the concentration ratio has risen, this suggests the five firms now control a larger part of the market. This does not imply that they have become more efficient. There is no mention of external economies of scale, so it is unknown as to if the ratio has risen due internal economies of scale, fewer competitors in the market, or other factors. If the industry had fewer barriers to entry, more firms would enter the industry and the concentration ration would fall.Oligopoly refers to a market structure where firms exist or dominate the market. The fact that the five firms now have more power suggests that the industry is becoming more oligopolistic.

4. A

The concentration ratio of an industry measures the output of an industry's largest firm (or firms) as a proportion of the industry's total output. It can be calculated by the following formula:

$$\text{Concentration ratio} = \frac{\text{output of industry's largest firms}}{\text{total output of industry}} \times 100$$

The four firm concentration ration of 25% refers to when the largest four firms in the market have a total market share of 25%.

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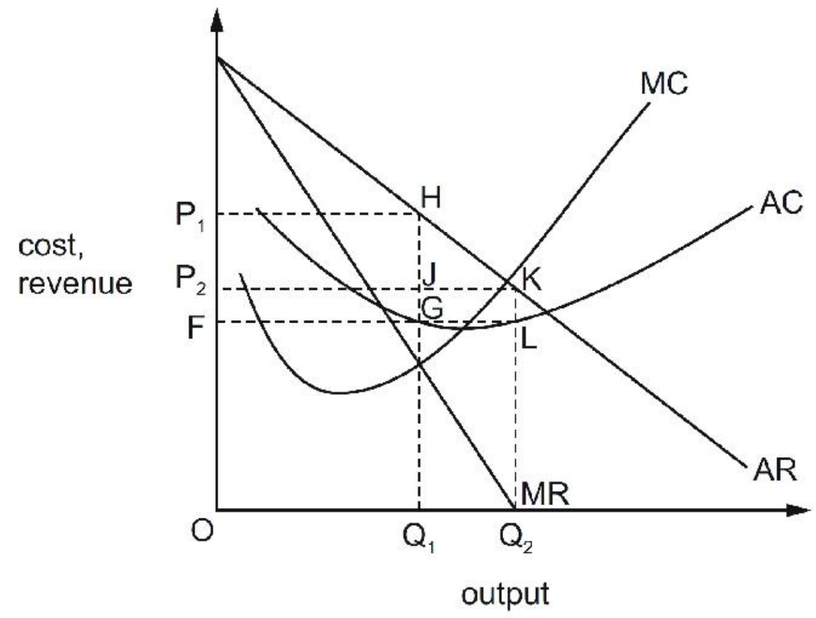
Unit 9 Firms's objectives, price discrimination and contestable markets

9.1 Objectives of firms

1. M/J 16/P32/Q7

A monopolist changes its objective from profit maximisation to sales revenue maximisation.



On the diagram, which areas represent the monopolist's total profit?

	original profit	final profit
A	P_1HJP_2	P_2KLF
B	P_1HJP_2	JKLG
C	P_1HGF	P_2KLF
D	P_1HGF	JKLG

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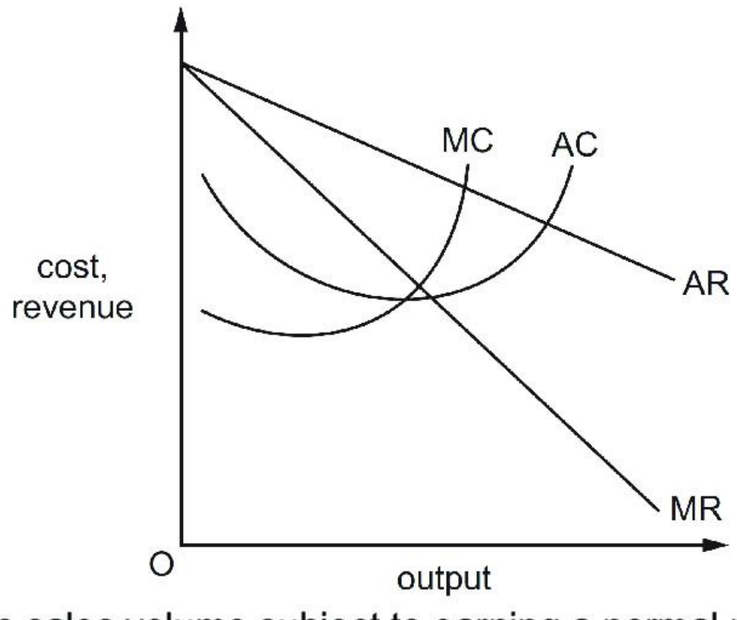
2. O/N 15/P31/Q11

The diagram shows a firm's cost and revenue curves.

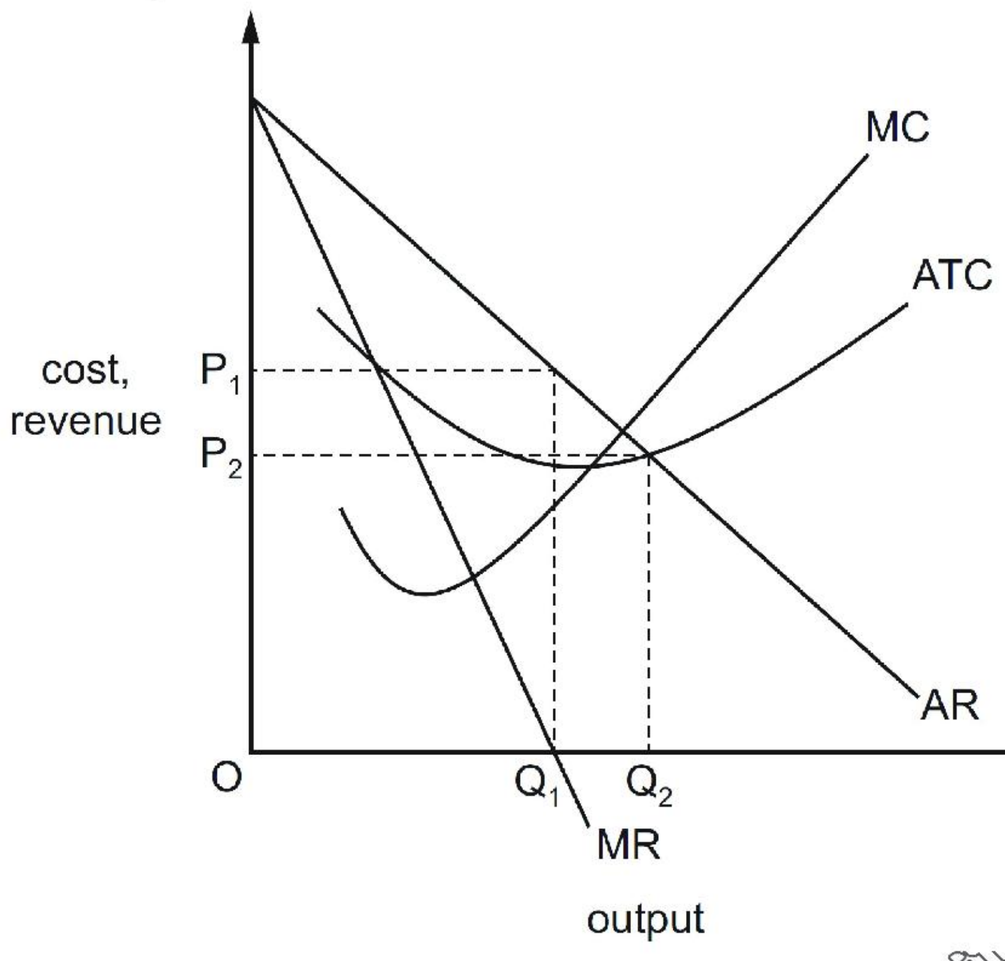


The firm currently aims to maximised its sales volume subject to earning a normal profit. What will be the effect on price and output if it changes its objective to revenue maximisation while retaining the same minimum profit constraint?

	effect on price	effect on output
A	increase	no change
B	increase	reduce
C	no change	no change
D	no change	reduce

3. O/N 15/P33/Q12

The diagram shows a monopolist's cost and revenue curves.



The monopolist changes its price from P_1 to P_2 and its output from Q_1 to Q_2.
Which change in objective is indicated by the move from P_1 to P_2?

A profit maximisation to sales revenue maximisation

B profit maximisation to sales maximisation subject to earning a normal profit

C sales revenue maximisation to profit maximisation

D sales revenue maximisation to sales maximisation subject to earning a normal profit

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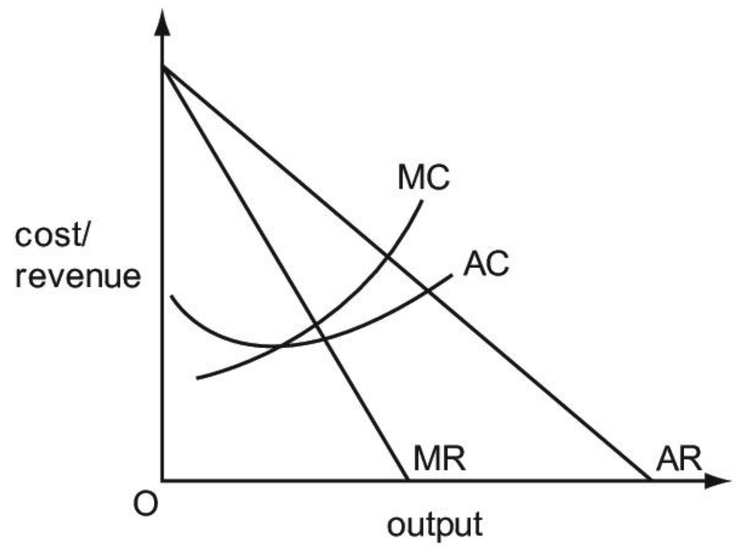
4. O/N 13/P31/Q10

The diagram shows a firm's cost and revenue curves.

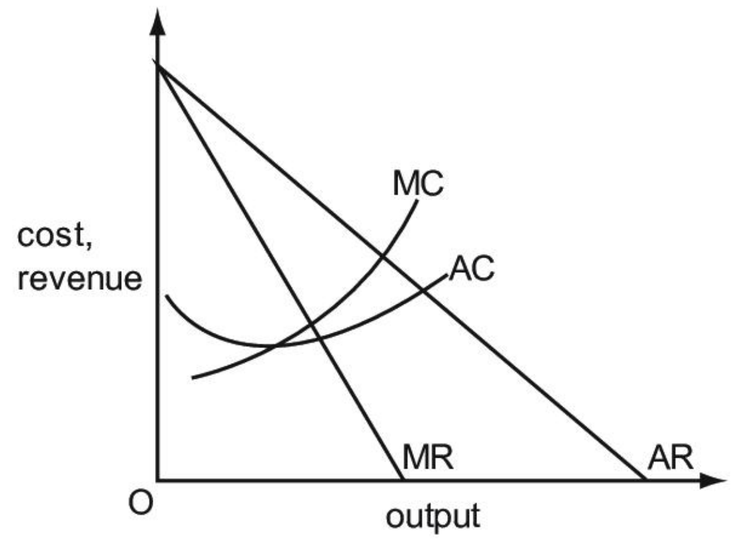


The firm changes its objective from sales revenue maximisation to profit maximisation.
How will this affect the net economic welfare of the following groups in the short run?

	customers	workers
A	fall	rise
B	fall	fall
C	rise	rise
D	rise	fall

5. M/J 13/P32/Q11

The diagram shows a firm's cost and revenue curves.



The firm changes its objective from sales revenue maximisation to profit maximisation.
Which groups are most likely to be winners and losers as a result of this change?

	winners	losers
A	customers	managers
B	managers	workers
C	workers	shareholders
D	shareholders	customers

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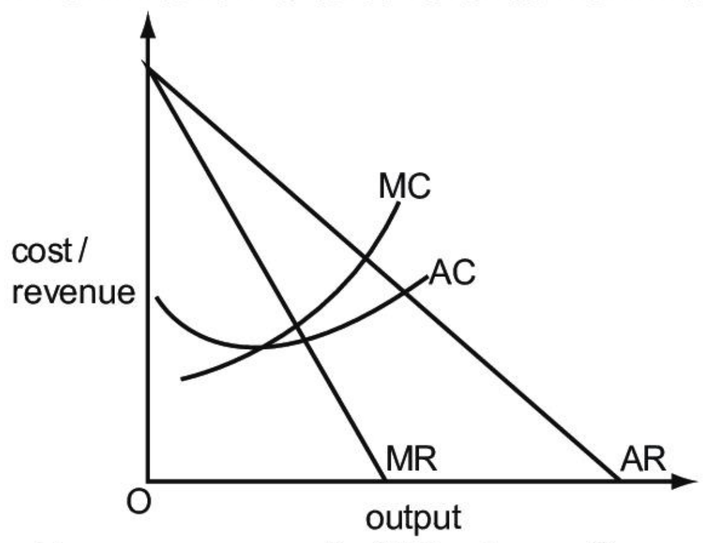
6. M/J 17/P32/Q8, O/N 13/P32/Q10, O/N 03/P3/Q14

The diagram shows a firm's cost and revenue curves
The firm changes its objective from profit maximisation to sales revenue maximisation.

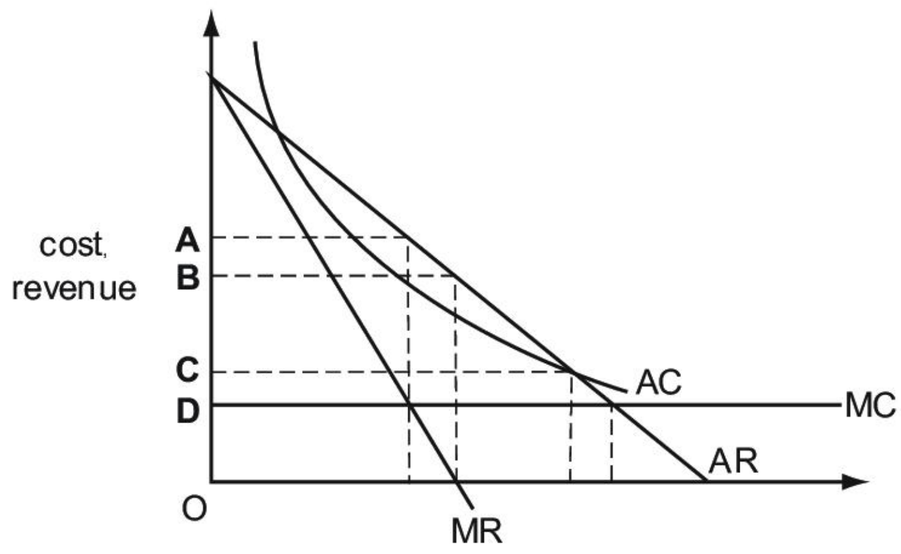


Which groups are likely to be winners and losers as a result of this change?

	winners	losers
A	customers	shareholders
B	managers	customers
C	workers	managers
D	shareholders	workers

7. M/J 15/P31/Q12

The diagram shows the cost and revenue curves for the production of a textbook. Which price would maximise the publisher's revenue from the book?



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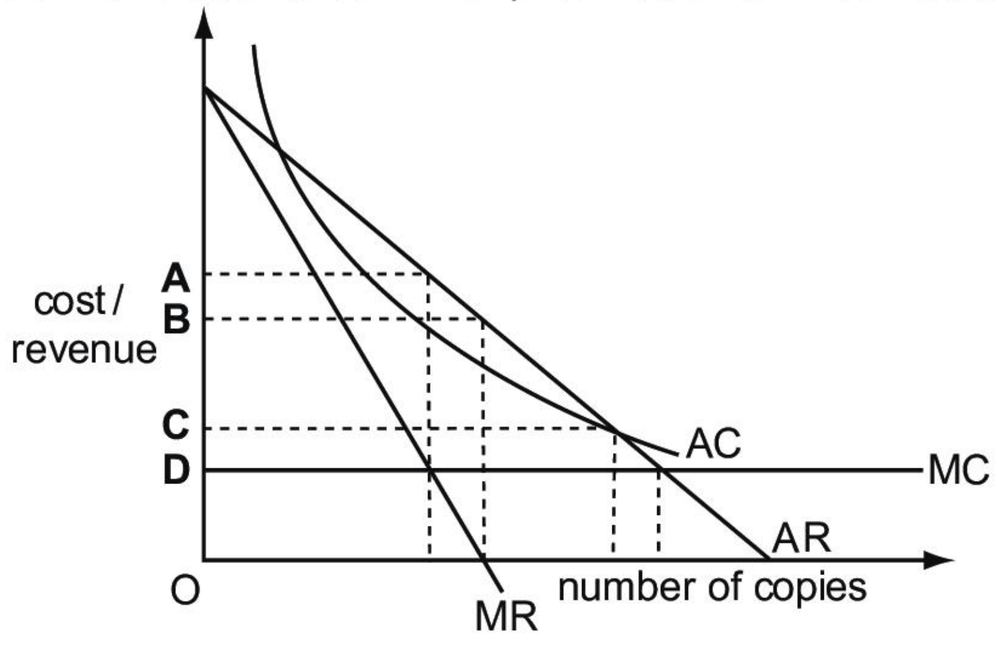
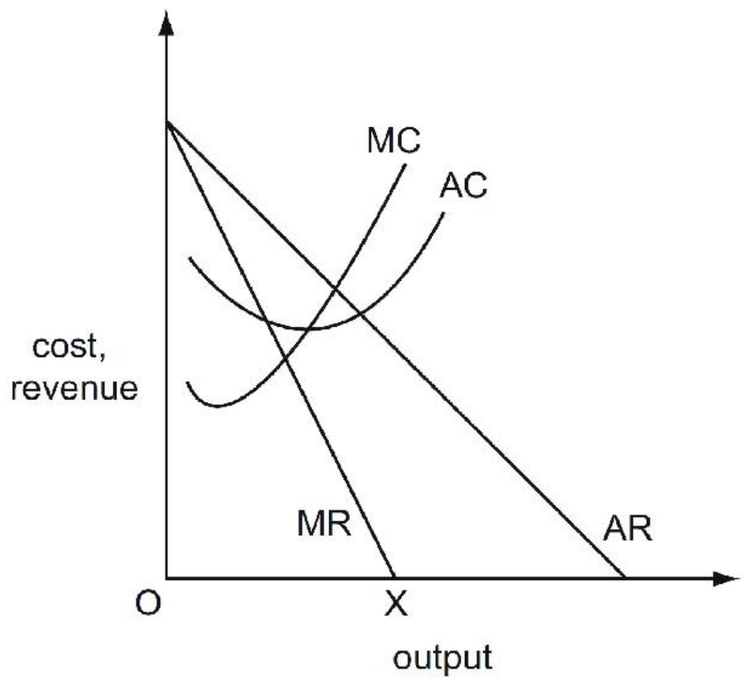
8. M/J 03/P3/Q10

The diagram shows the cost and revenue curves for the production of a textbook. The contract with the publisher entitles the author to a fixed percentage of the value of sales. Which price would maximise the author's income from the book?



9. M/J 15/P32/Q12

The diagram shows the cost and revenue curves of a monopoly.



What is the firm's objective if it produces output OX?

A to achieve normal profit
B to maximise profit
C to maximise total revenue
D to minimise average cost

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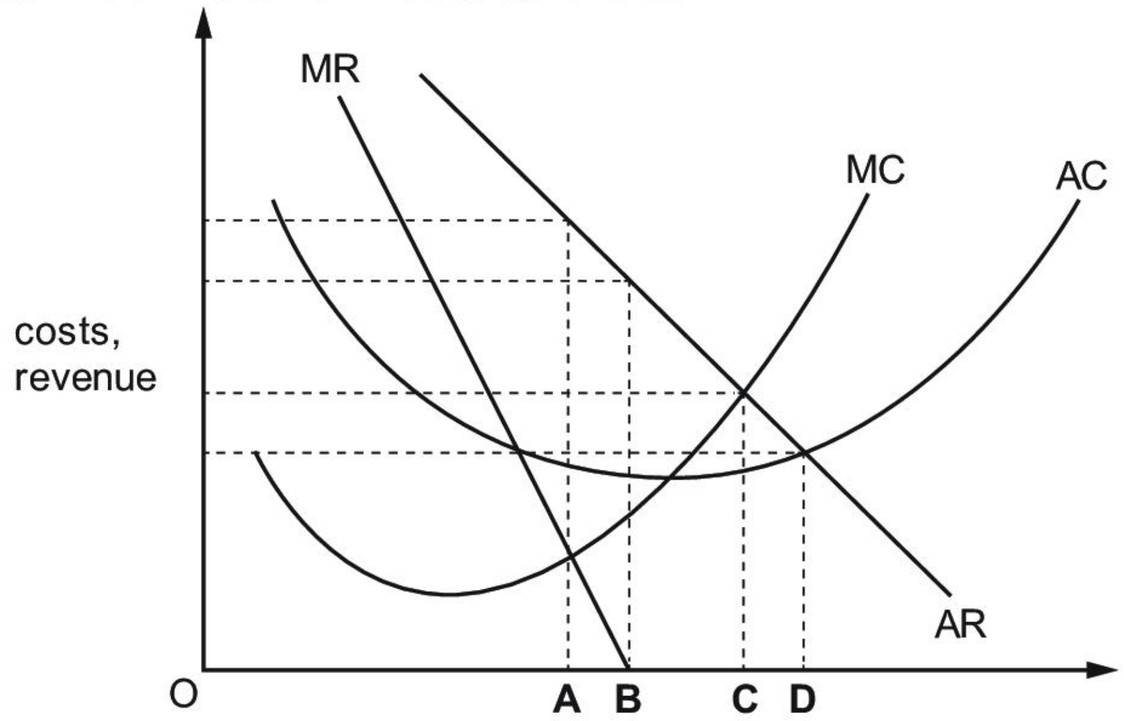
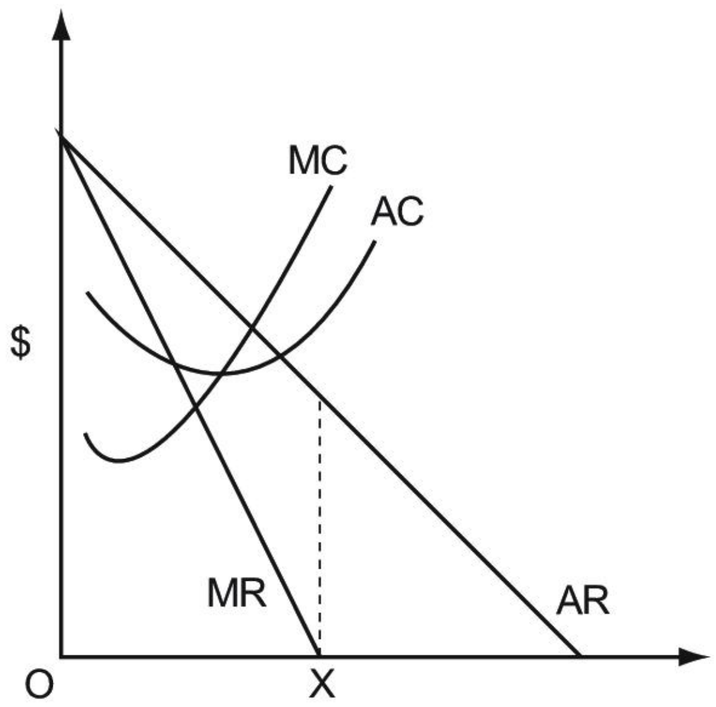
10. M/J 14/P32/Q12

The diagram shows the cost and revenue curves of a monopolist.
Which output will the firm produce if its aim is to maximise sales revenue?



11. O/N 12/P33/Q9

The diagram shows the cost and revenue curves of a monopoly.



What is the firm's objective if it produces output OX?

A to achieve normal profit
B to maximise profit
C to maximise total revenue
D to minimise average cost

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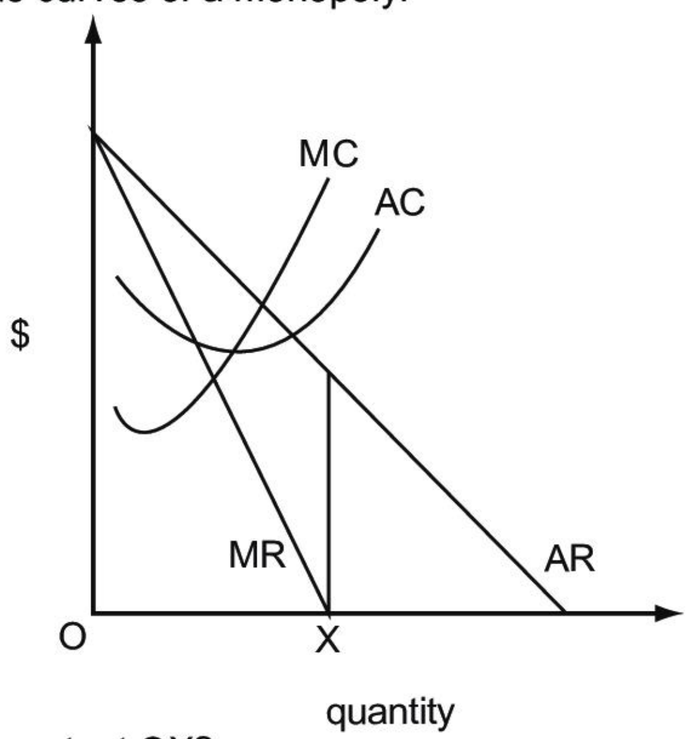
12. M/J 06/P32/Q10

The diagram shows the cost and revenue curves of a monopoly.

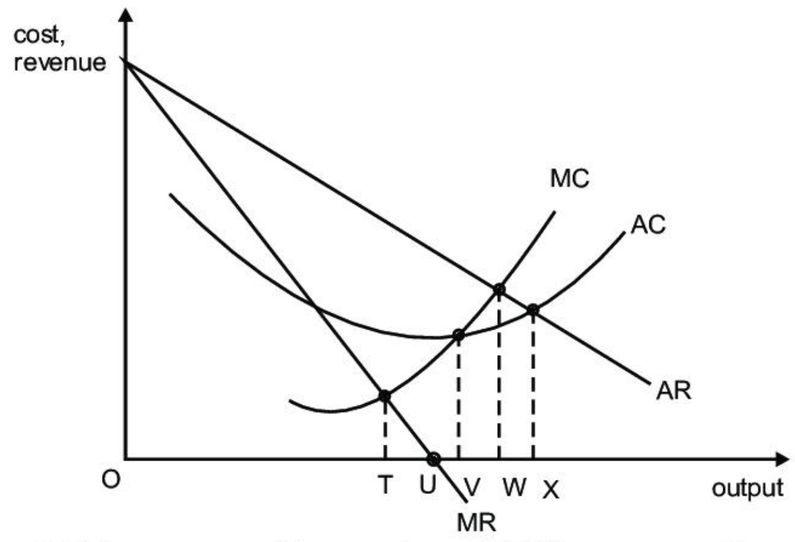


What is the firm's objective if it produces output OX?

A to achieve normal profit
B to maximise profit
C to maximise total revenue
D to minimise average cost

13. M/J 91/P32

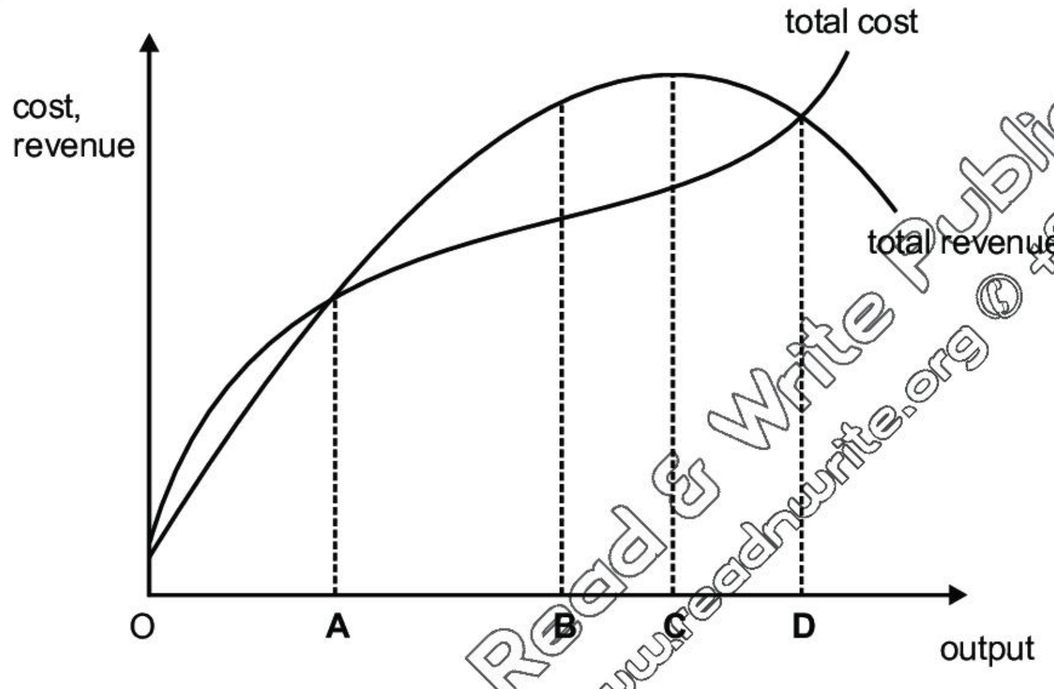
The diagram shows the revenue and cost curves of a monopolist.
The firm decides to change its objective from profit maximization to revenue maximization.
Which will be the change in output?



A a rise of TU. **B** a rise of TV. **C** a rise of TW. **D** a fall of WU.

14. O/N 98/P32

The diagram shows a firm's total cost and total revenue curves.
The firm's managers aim to maximize revenue, but are required by the firm's owners to achieve **at least** normal profit.
Which output will it produce?



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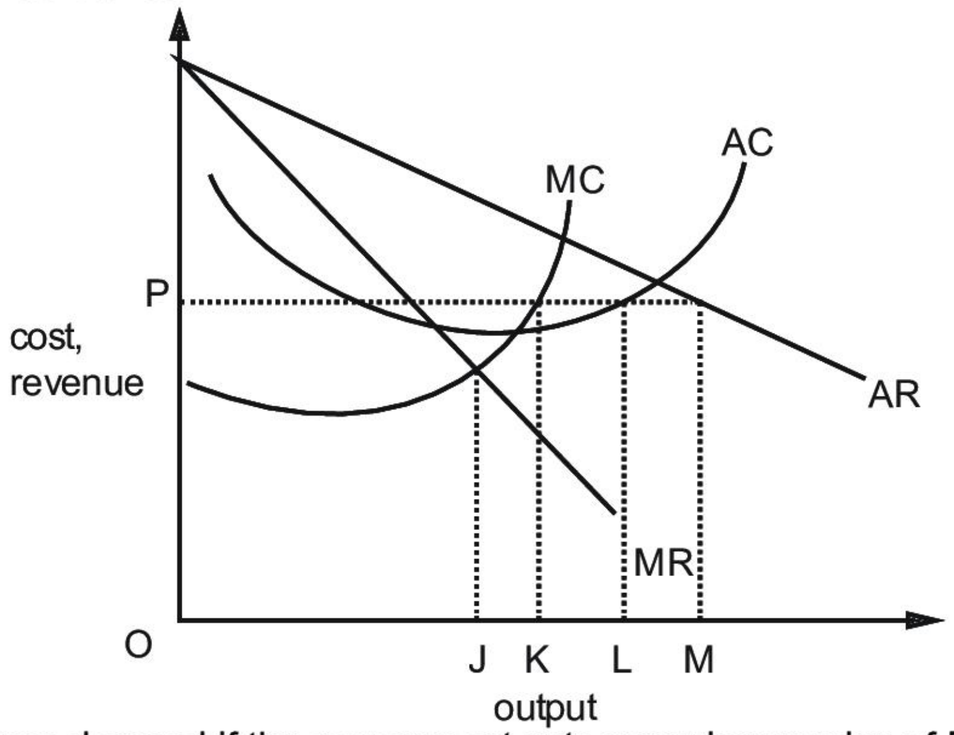
15. O/N 14/P33/Q12

In the diagram, MC and AC are a profit-maximising monopolist's marginal and average cost curves, and MR and AR, its initial marginal and average revenue curves.



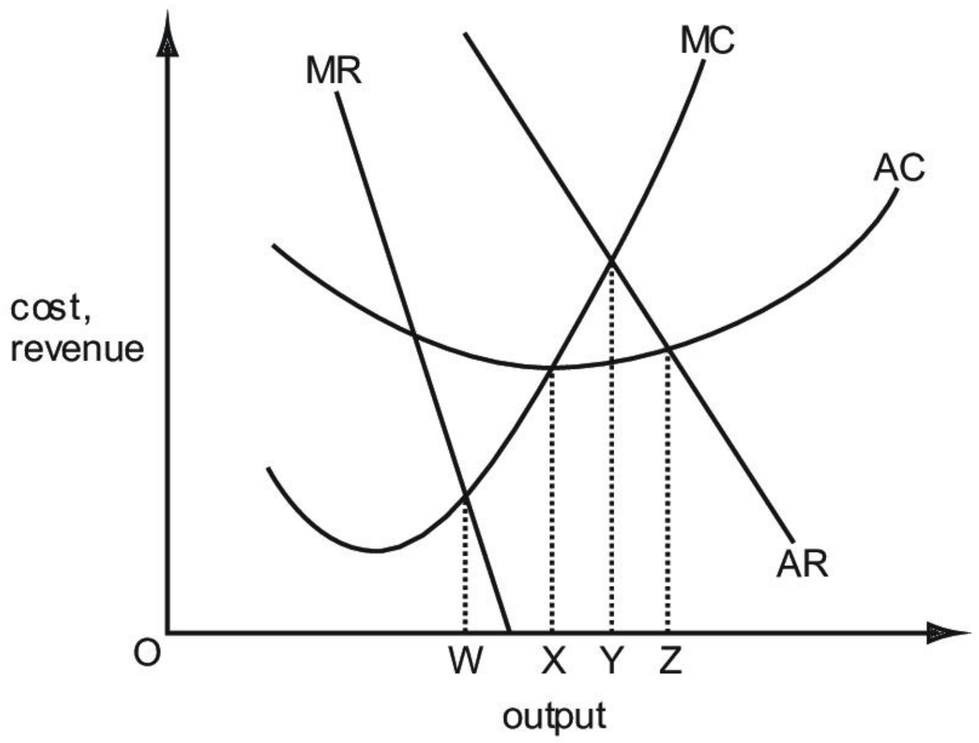
Which distance will measure excess demand if the government sets a maximum price of P?

A JK **B** KL **C** KM **D** LM

16. O/N 12/P32/Q13

The diagram shows a profit-maximising firm's cost and revenue curves.

What would be the increase in the firm's output if it was required to charge a price equal to marginal cost?



A WX **B** XY **C** WY **D** XZ

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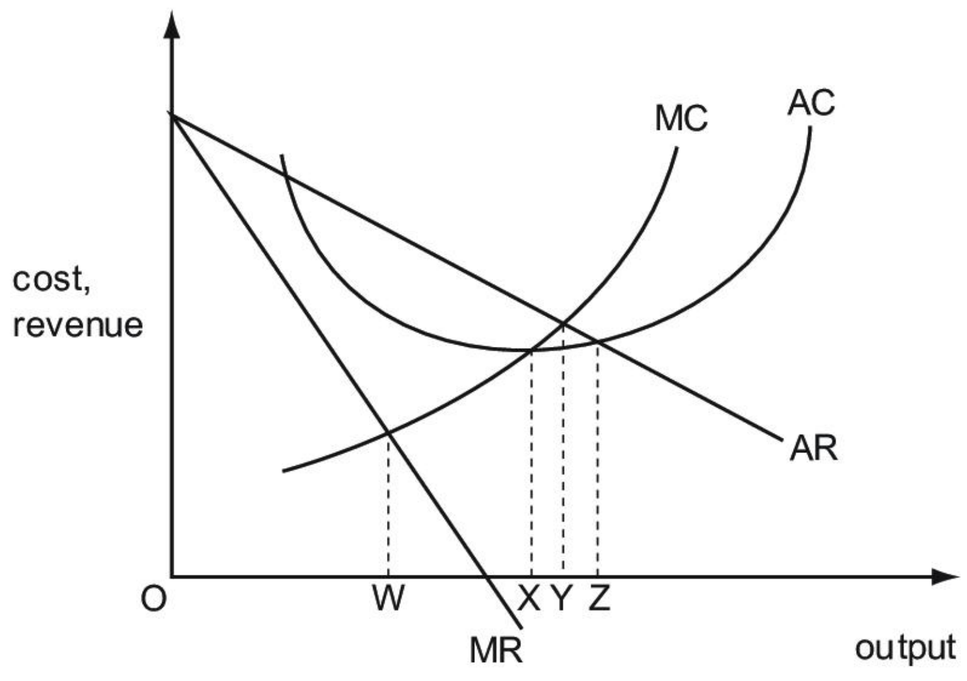
17. O/N 11/P32/Q11

The diagram shows the cost and revenue curves of a monopoly.



Which movement between levels of output would indicate a wish to change from unit cost minimisation to earning a normal profit?

A W to Y **B** W to Z **C** X to W **D** X to Z

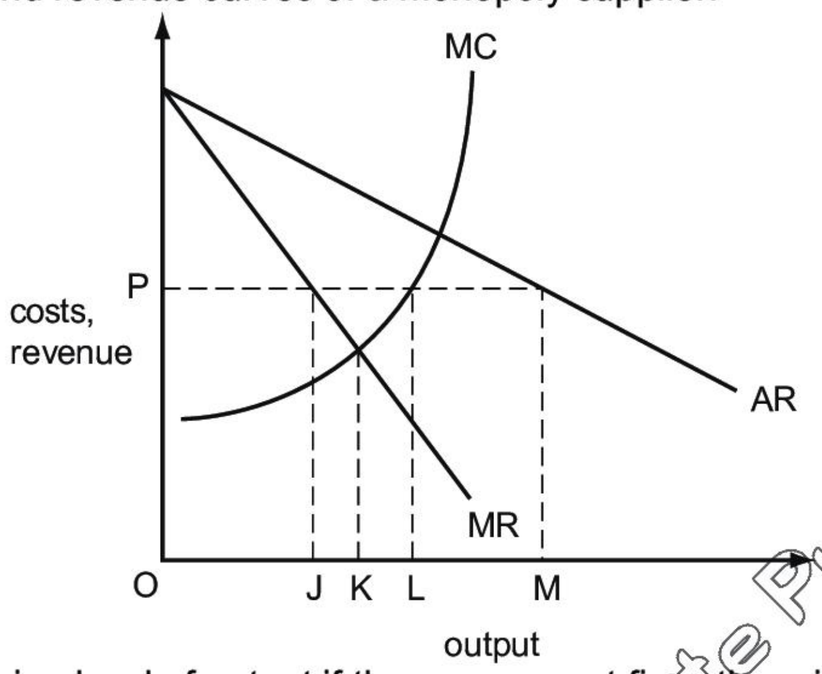
18. O/N 08/P3/Q12

The monopolist is required by the government to adopt marginal cost pricing.
What will be the effect on the price charged and the output produced?

	price	output
A	increase	increase
B	increase	decrease
C	decrease	increase
D	decrease	decrease

19. O/N 06,M/J 09/P32/Q15

The diagram shows the initial cost and revenue curves of a monopoly supplier.



What will be the firm's profit-maximising level of output if the government fixes the price at OP?

A OJ **B** OK **C** OL **D** OM

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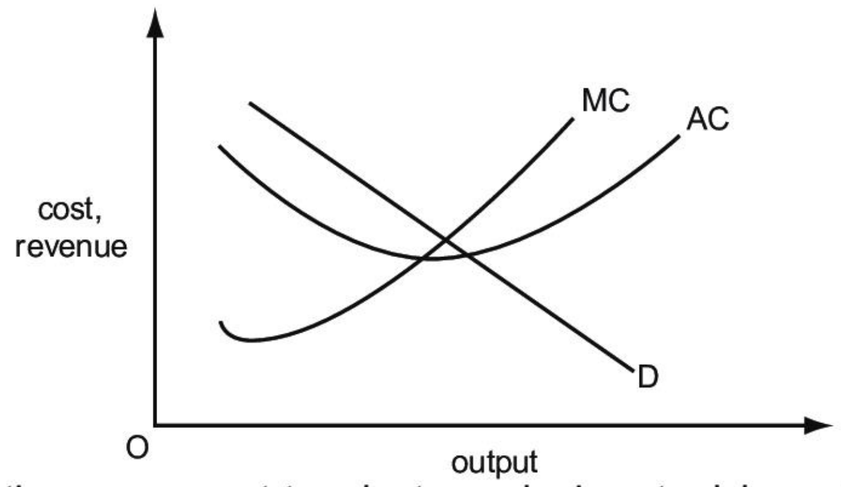
20. M/J 04/P3/Q14

The diagram shows the demand and cost curves of a monopolist who initially produces at his profit-maximising level of output.

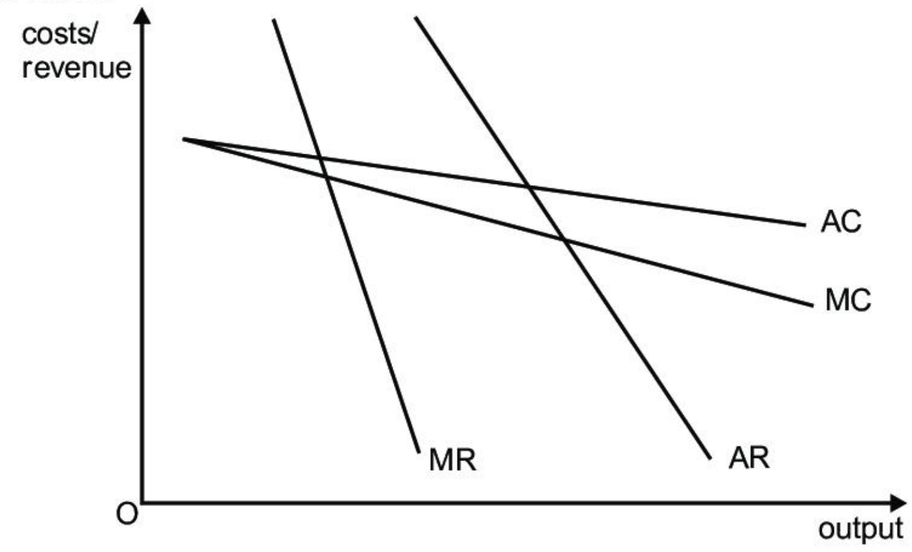


If the monopolist were required by the government to adopt marginal cost pricing, what would be the effect on the price charged and the output produced?

	price	output
A	increase	increase
B	increase	decrease
C	decrease	increase
D	decrease	decrease

21. O/N 00/P3

The diagram shows the long-run cost and revenue curves of a monopolist. What would happen if the firm were required to set a price equal to its marginal cost?



A It would break even.

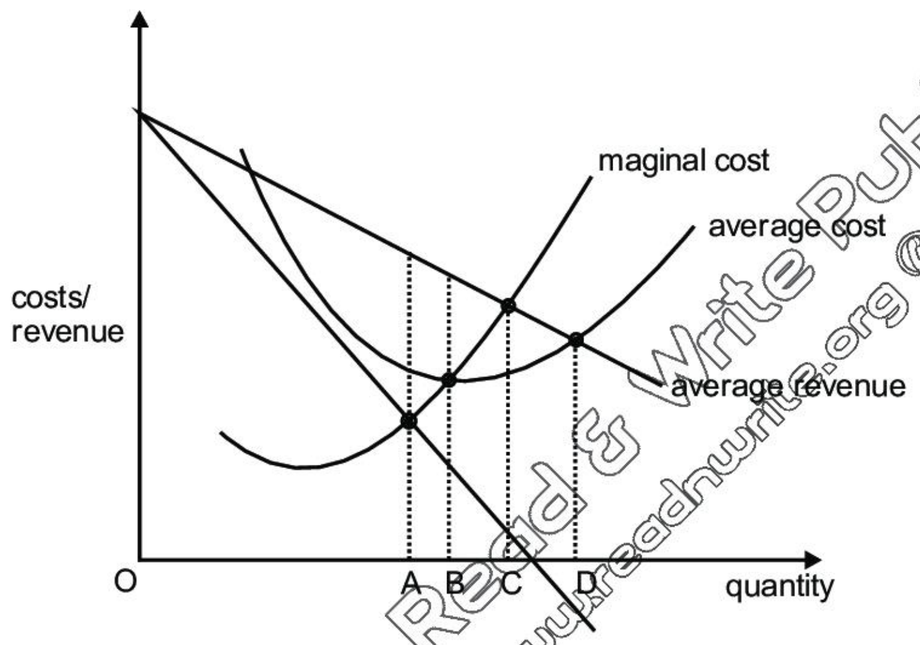
B It would make a loss.

C It would maximize its profits.

D It would maximize its revenue.

22. O/N 95/P3/Q13

The diagram relates to a monopolist whose objective is to maximize output whilst still making normal profits Which output will be produced?



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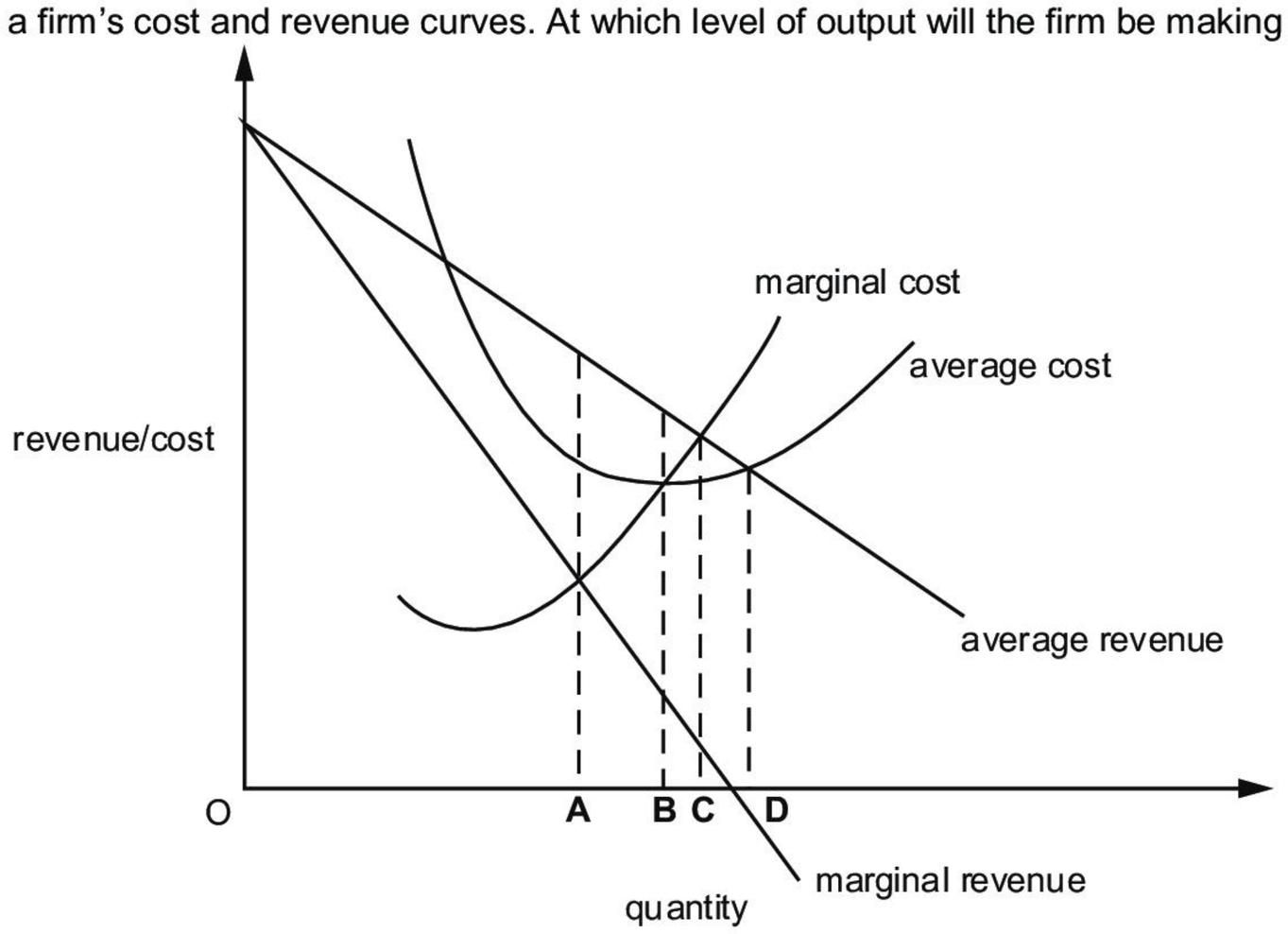
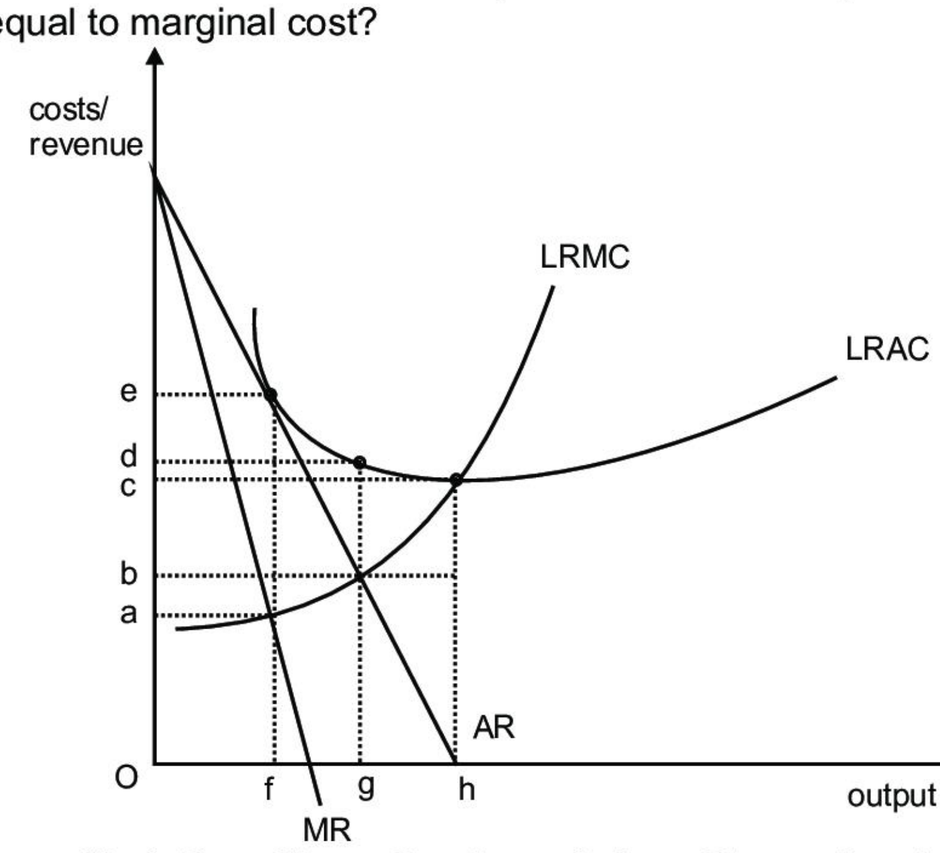
23. O/N 94,O/N 95,M/J 02/P3/Q2

The diagram shows a firm's cost and revenue curves. At which level of output will the firm be making only normal profit?



24. O/N 93/P3

The diagram shows the cost and revenue curves of a monopolist. What level of profit or loss would the monopolist achieve if forced to set price equal to marginal cost?



A profit of **ae** x **Of** **B** profit of **Oc** x **Oh** **C** loss of **bc** x **Oh** **D** loss of **bd** x **Og**

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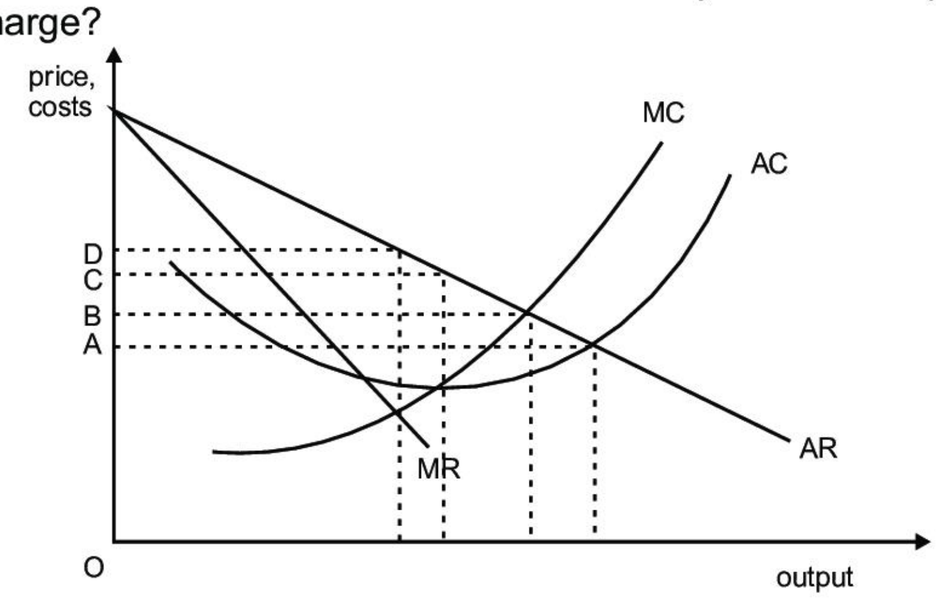
25. M/J 92/P3

The diagram shows the cost and revenue curves of a nationalized industry. The industry is required to adopt marginal cost pricing. What price will it charge?



26. M/J 92/P3

What would be the effect on output and profits if a profit-maximizing monopoly were nationalized and instructed to charge a price equal to marginal cost?

	Output	Profits
A	increase	Increase
B	increase	Decrease
C	unchanged	Unchanged
D	decrease	Increase

27. M/J 16/P31/Q8

When would the aim of a firm be most likely to be other than profit maximisation?

A when there are a large number of firms in the industry

B when there are a large number of shareholders and few paid managers

C when there is a large investment expenditure required

D when there is a large output produced

28. M/J 16/P31/Q11

A firm with a downward-sloping straight line demand curve for its product is producing at an output where its marginal revenue is positive.

Which strategy would be most effective if the owners of the firm want to maximise the total revenue of the firm?

A decrease the firm's output to where marginal revenue equals average revenue

B decrease the product's price to where average revenue is zero

C increase the firm's output to where marginal revenue is zero

D increase the product's price to where marginal revenue equals average revenue

29. O/N 06/P3/Q10

A firm decides to aim to maximise sales revenue rather than profits.

What is likely to be one of the consequences of this decision?

A an increase in the price of the firm's product

B a reduction in the price of the firm's shares

C a reduction in the firm's market share

D a reduction in the number employed by the firm

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30. M/J 14/P31/Q12

A firm decides to maximise sales revenue rather than profits.
What is likely to be one of the consequences of this decision?

A an increase in the price of the firm's product
B a reduction in the price of the firm's shares
C a reduction in the firm's market share
D a reduction in the number employed by the firm

31. O/N 12/P31/Q10

A firm currently aims to maximise its sales revenue.
What is likely to happen if the firm decides instead to aim at maximising profit?

A a reduction in the price of the firm's product
B a reduction in the price of the firm's shares
C a reduction in the firm's market share
D an increase in the number employed by the firm

32. O/N 04/P3/Q11

To maximise total revenue, up to which point should a monopolist increase output?

A where marginal revenue equals average revenue
B where marginal revenue is maximised
C where marginal revenue is zero
D where price elasticity of demand is zero

33. M/J 98/P3

A firm maximizes its profit by maximizing its total revenue,
What does this imply?

A Average fixed cost is zero.
B Average revenue is equal to average cost.
C Marginal cost is zero.
D Marginal revenue is greater than marginal cost.

34. O/N 94/P3

The owner of a well decides to sell water to local people. There is a fixed cost but no variable costs operating the well.
What should the owner do to maximizes his profits?

A maximize his total revenue.
B minimize his total cost.
C sell at the highest possible price.
D sell as much water as possible.

35. M/J 94/P3

A fishmonger must throw away fish that remain unsold at the end of each day.
One hour before he closes for the day, a fishmonger has 50 kilos of unsold fish.
To maximize his profits, what price should he charge for the fish?

A a price equal to his marginal revenue.
B the price which gives him the highest profit marginal per kilo of fish.
C the price which will maximize his total revenue.
D the wholesale price at which he bought the fish.

36. M/J 16/P32/Q11

A firm wishes to eliminate competition and become a monopoly.
What should it do?

A maximise output
B maximise profit
C reduce profit
D reduce the number of its suppliers

37. O/N 93/P3

A firm faces average variable costs of $2 at an output level of 20 000 units. Its total fixed costs are $80 000.
If the firm adopts a pricing policy designed to yield normal profit only, what price will it charge?

A $2 **B** $4 **C** $6 **D** $8

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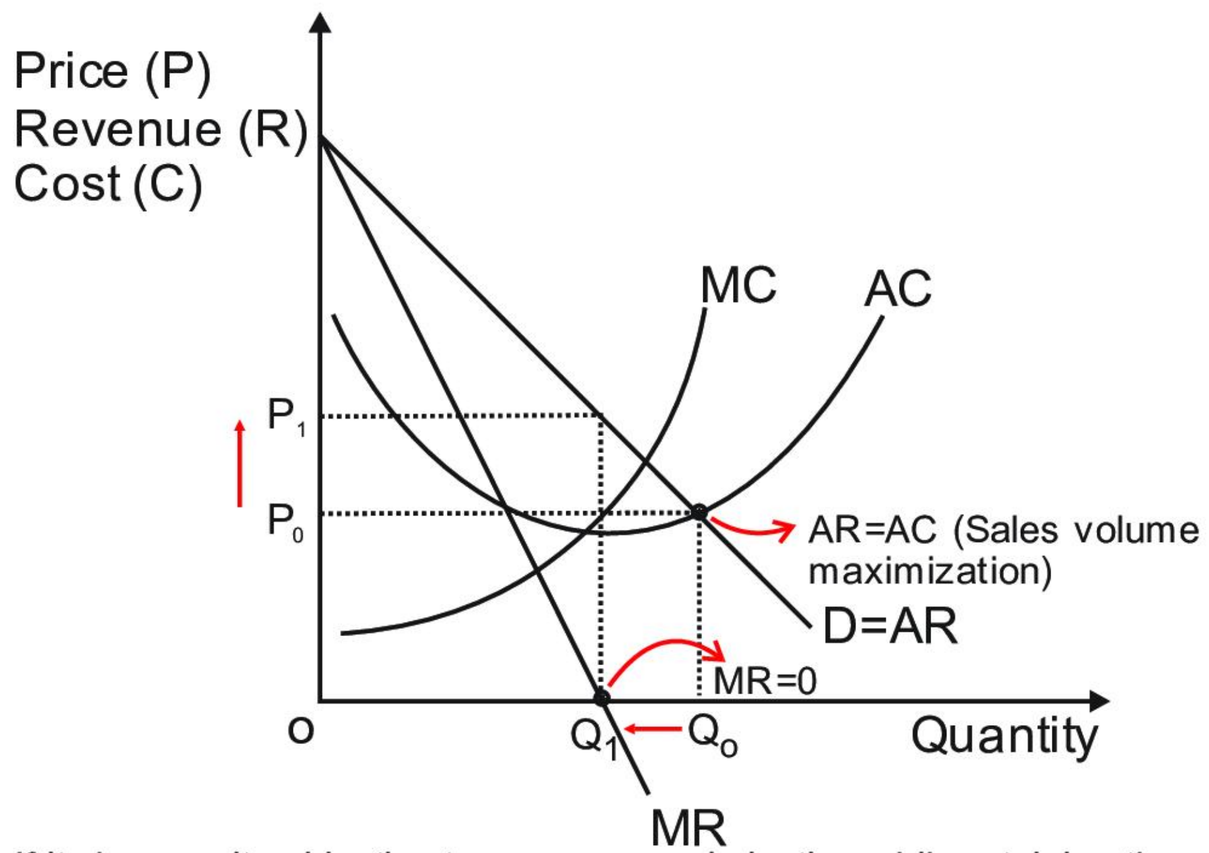
Answers Section

1. C
With objective of profit maximisation, monopolist will produce at Q_1 where total profit is shown by the area P_1 HGF. With the change in objective to sales revenue maximisation, new output will be Q_2 and new total profit will be P_2 KLF.

2. C
A firm currently aiming to maximised its sales volume subject to earning a normal profit will produce at output Q_0 and price P_0 as shown in the diagram below.



If it changes its objective to revenue maximisation while retaining the same minimum profit constraint, it will be producing at output Q_1 (lesser than Q_0) and will charge a price P_1 (more than P_0).

3. D
Revenue maximization occur when MR = 0. The point where MR = 0 is represented by the price P_1 and output is Q_1 When firm is forced to follow MC pricing the new price will be P_2 where AR = P = MC and the respective output Q_2. As seen through diagram, the price decreases whereas quantity increases.

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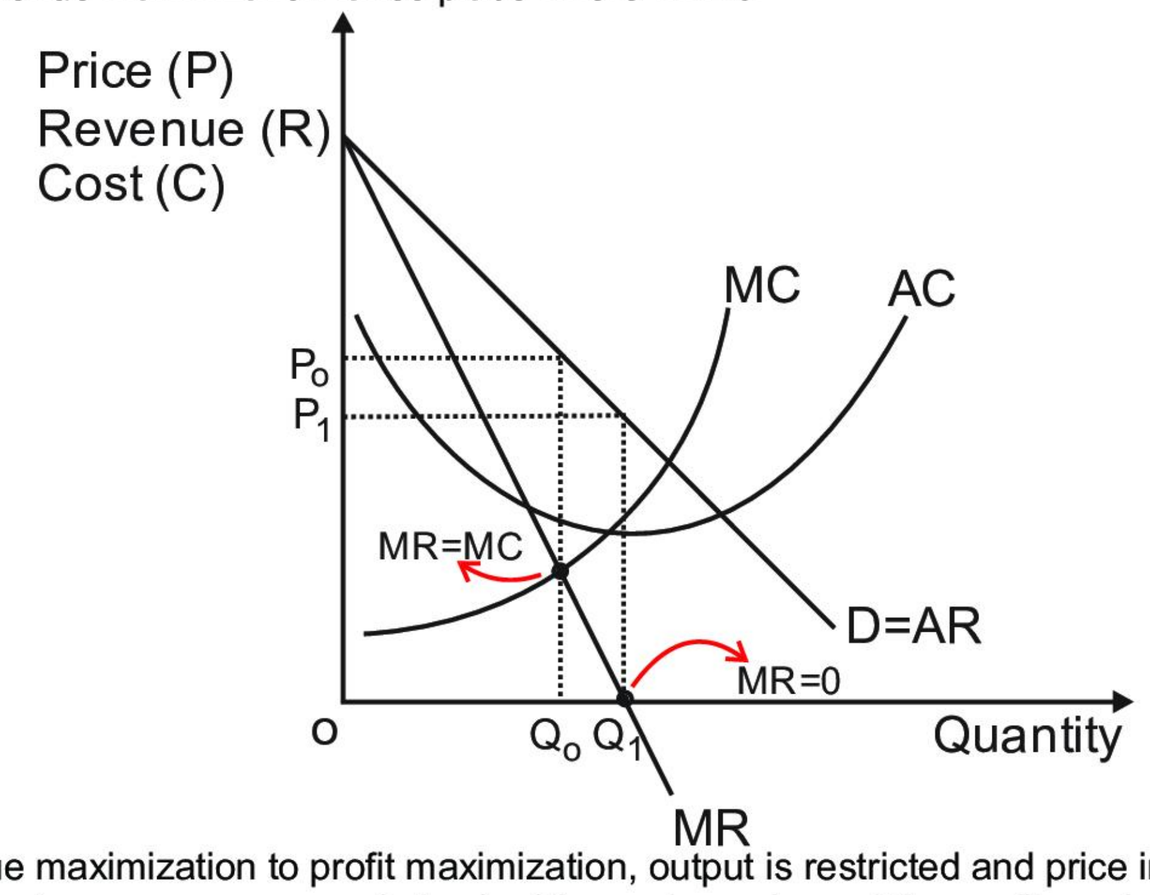
4. B

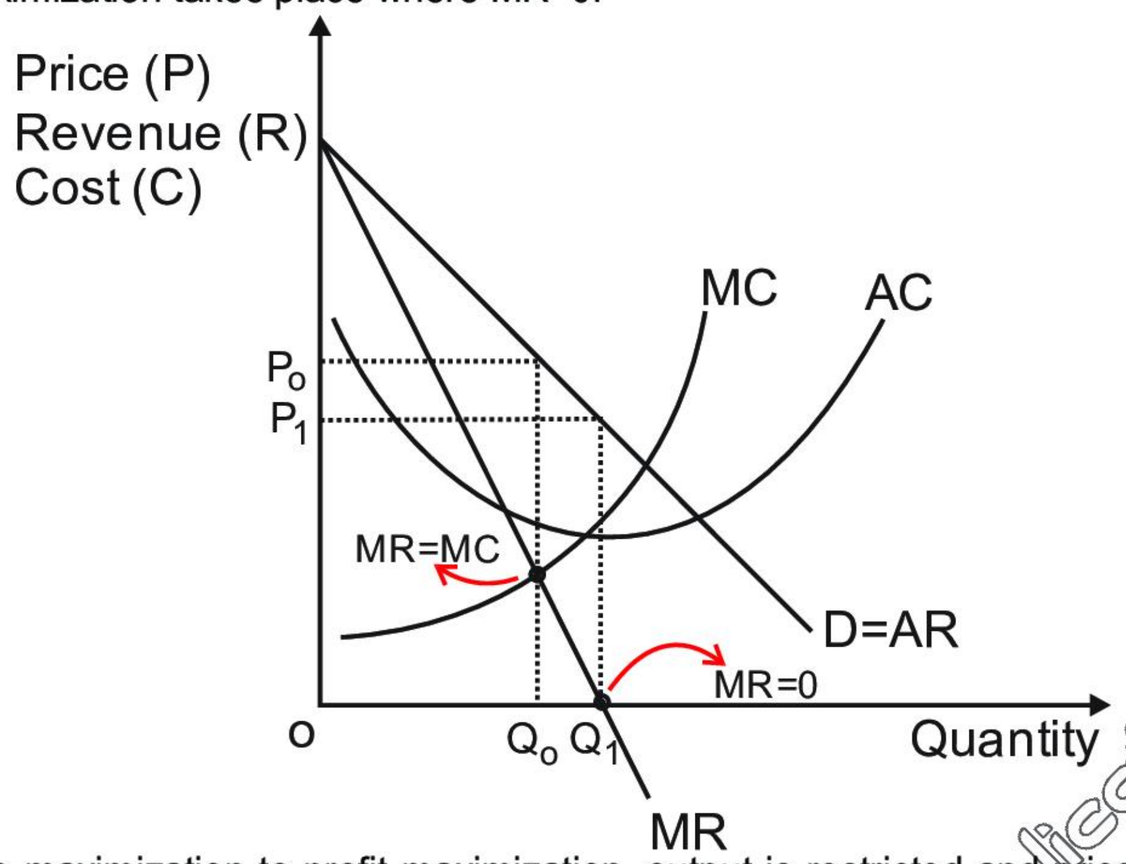
The profit maximizing output will be where the MC curve intersects the MR curve. The price will be determined through the AR curve. Revenue maximization takes place where MR=0.



So by moving from revenue maximization to profit maximization, output is restricted and price increases. This is bad for consumers since they have to pay more now and also bad for workers since at the profit maximization point for lower output there will be less number of workers employed. So option B is correct.

5. D

The profit maximizing output will be where the MC curve intersects the MR curve. The price will be determined through the AR curve. Revenue maximization takes place where MR=0.



So by moving from revenue maximization to profit maximization, output is restricted and price increases. This is bad for consumers since they have to pay more now but better for shareholders since at the profit maximization point they will earn a higher return on their investment. So option D is correct.

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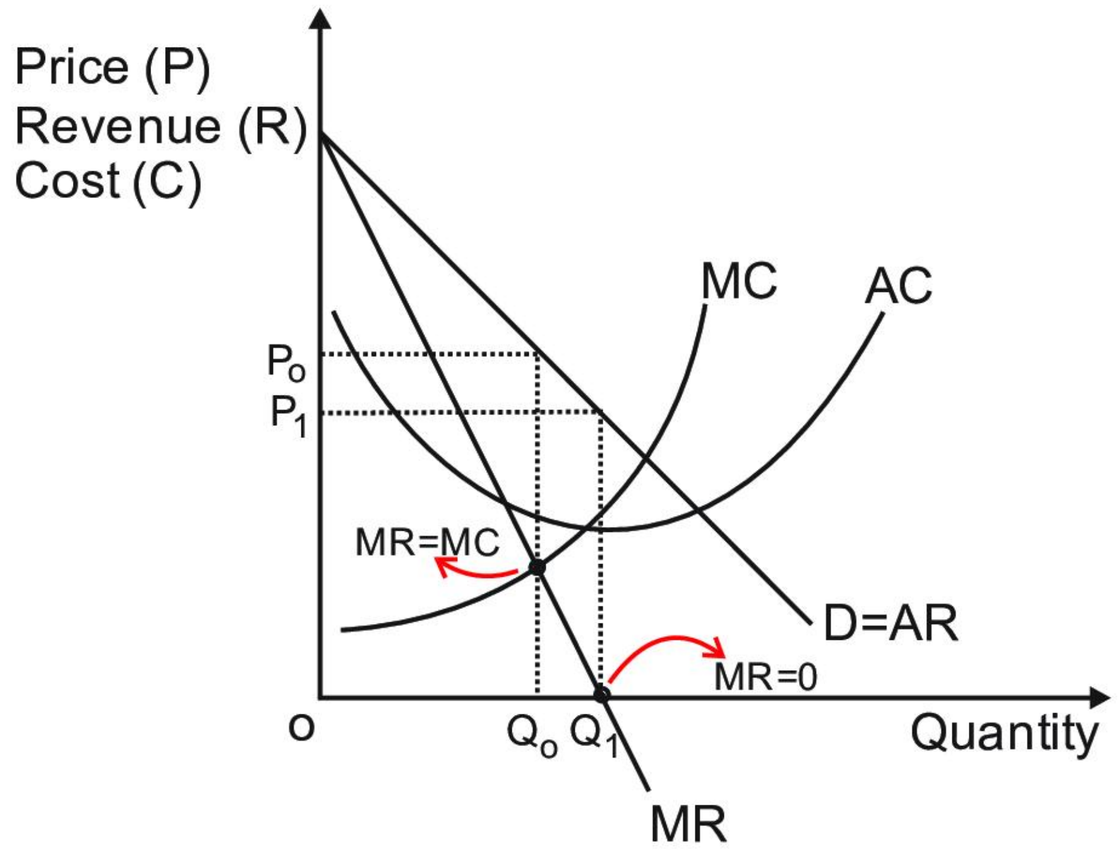
6. A



According to profit maximization, the price will be P_0 and output Q_0. In case of revenue maximize the price will decrease to P_1 and quantity will increase to Q_1.

The decrease in prices will benefit customers who will be able to buy more quantity of product. However the firm's profits will decrease and share holders' returns would therefore be reduced. In this case, shareholders will be the losers.

7. B

8. B

Author's income will be maximized where revenue is maximized because author's income is related with a fixed percentage of sales. When sales to be maximum, author's income will be maximum. Therefore, the price will be set where MR=0. Hence B option is the answer.

9. C

10. B

Sales revenue maximization will occur where marginal revenue is zero. According to the graph at output B marginal revenue will be zero and that is where sales revenue will be at its maximum.

11. C

12. C

At OX, MR is equal to zero. Hence, a firm will aim to maximize its total revenue.

13. A

Profit maximization is where MR=MC but revenue is maximised where MR=0. A change from profit maximization to revenue maximization will require to produce where MR=0.
From diagram, MR=MC is established at point T. MR is zero at point U. Therefore the change in objective will change output with a rise of TU.

14. C

From the diagram of, first of all revenue is maximized at 'option C where total revenue is greatest. The other objective is to earn at least normal profit. This means total revenue should either equal or be greater than total cost. Combining the two objectives, we can get option C as best option available among all choices.

15. C

16. C

The AR curve also represents the demand curve and thus the price is determined through the AR curve. Initially the firm will produce at the profit maximizing output which is where MR=MC, so output is OW. In order to charge a price equal to marginal cost, the firm will produce where AR=P=MC, which is output OY. So the firm will have to increase its output by WY, option C.

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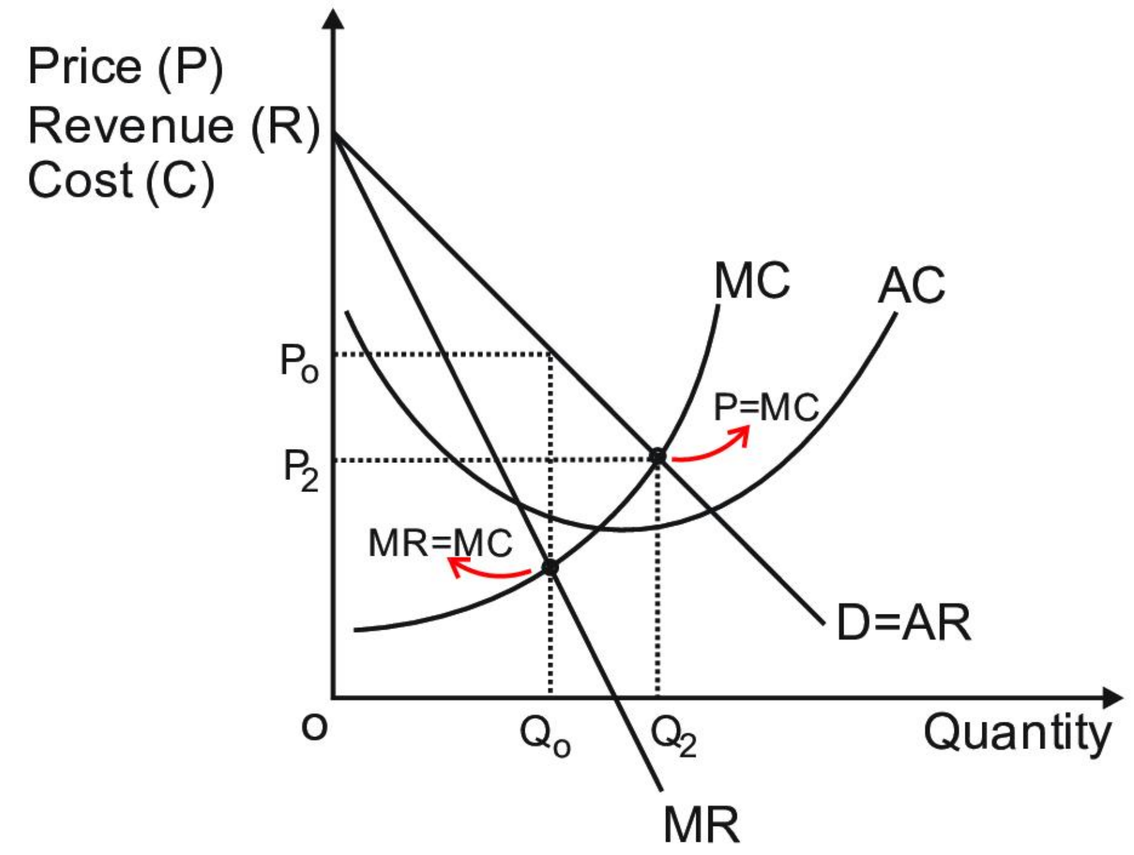
17. D

Unit cost minimization would be where average cost of the firm would be at its lowest. Recall the relationship between marginal cost and average cost, where marginal cost curve cuts the average cost curve at its lowest point. So output X would be the unit cost minimization point since that is where MC curve intersects the AC curve. The monopolist will earn normal profit where revenue is equal to cost. Here it will be where average revenue is equal to average cost. So that will be where the two curves intersect which is output Z. So option D refers to the correct changes in output.

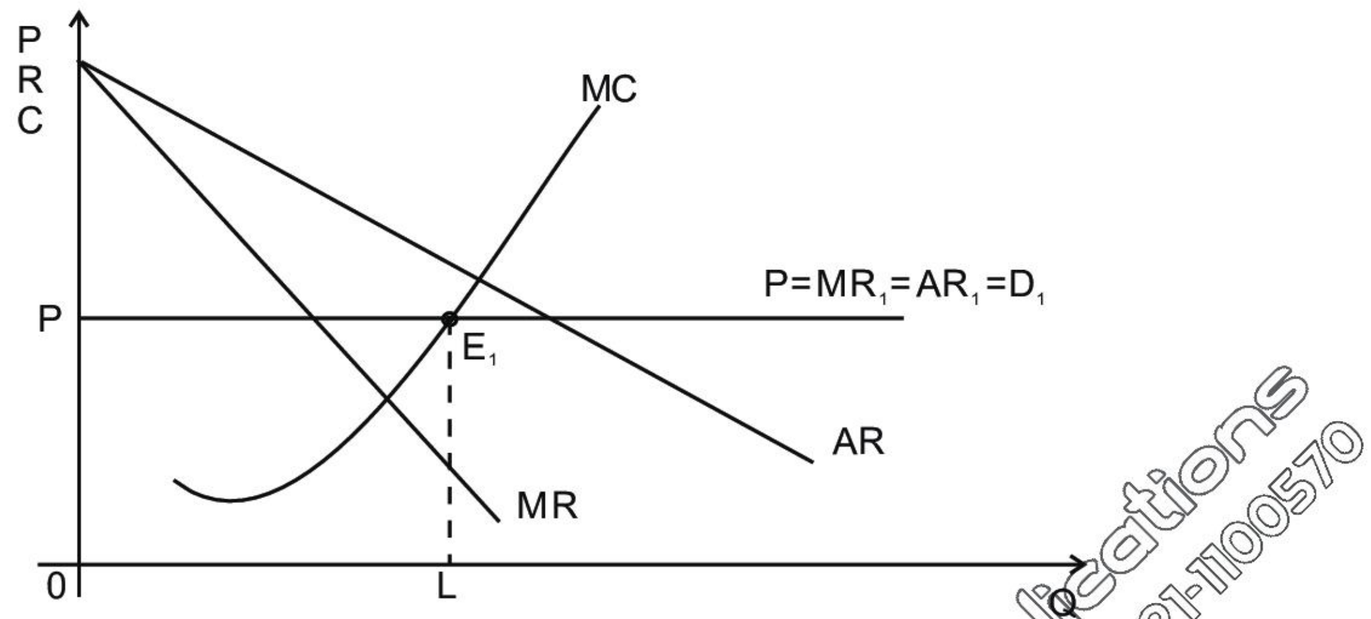
18. C

The monopolist aims to maximize its profits by producing, where MR = MC. By adopting MC pricing, price is equal to marginal costing (MC), the price decreases whereas output increases. The diagram below helps to explain it.



19. C

When price is fixed by government the firm becomes a price taker. Therefore the firm's demand curve will be where $P=MR_1=AR_{1=}D_1$ as shown below.



In order to maximize profits, the firm will produce where MR_1 = MC. This is shown by E_1 and quantity of OL.

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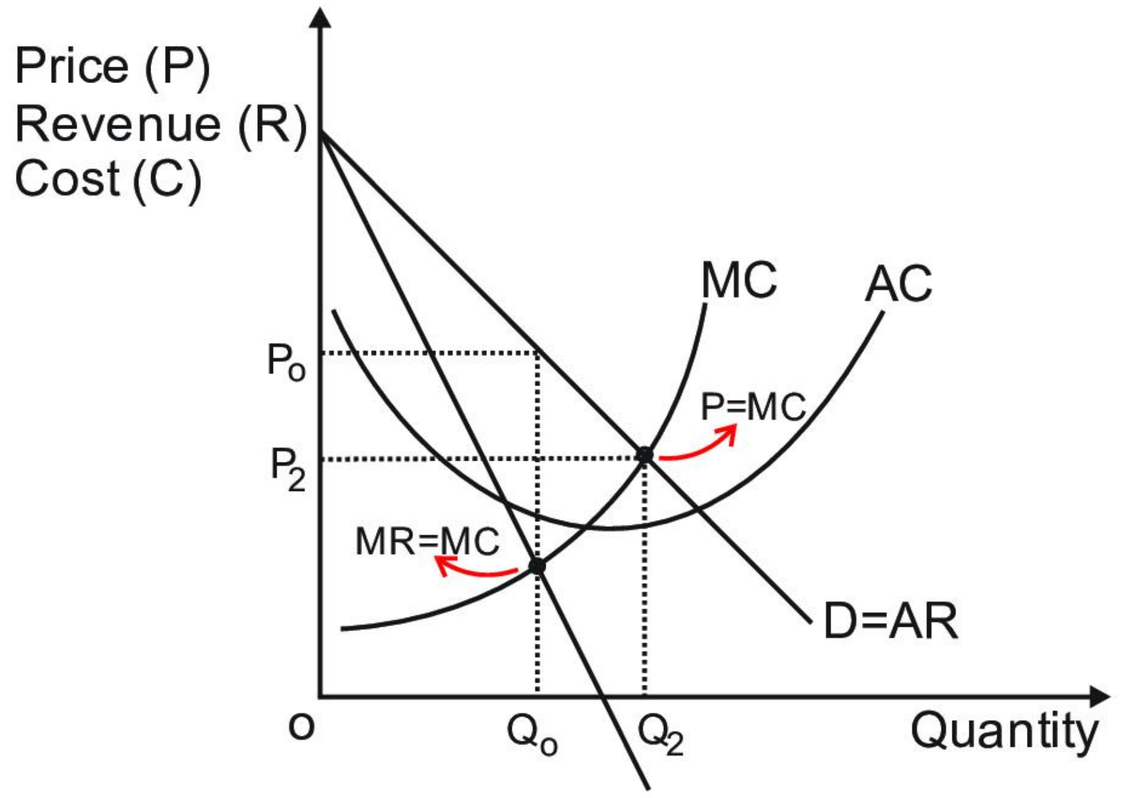
20. C

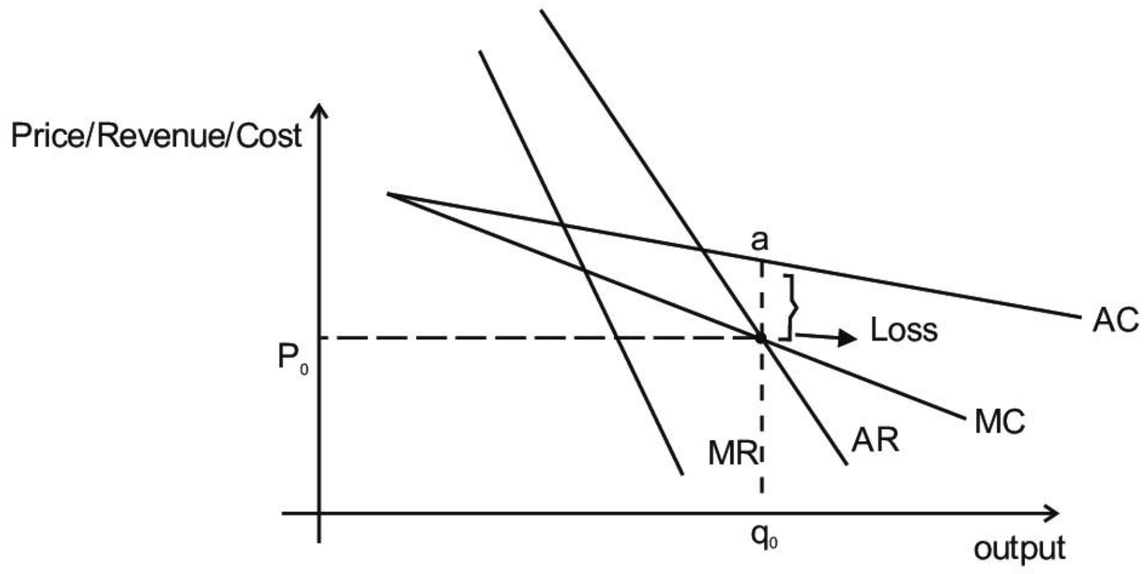
The effect of changing from profit maximization to marginal cost pricing is shown below.



Profit maximization occur when MR = MC. The point where MR = MC is represented by the price P_o whereas output is Q_o When firm is forced to follow MC pricing the new price will be P_2 where AR = P = MC and the respective output Q_2. As seen through diagram, the price decreases whereas quantity increases.

21. B

The diagram below can explain the effect of a firm setting a price equal to marginal cost.



The diagram shows the price and relative quantity. At this point, AR is lesser than AC and therefore the firm will operate at loss.

22. D

Normal profits occur where AR=AC as shown in option D.
Output is maximized where average revenue equals average cost. Same is the case with normal profits. Therefore according to options,
AR=AC at option D only.

23. D

Normal profits are earned where average revenue is equal to average cost. This is shown in option D where average revenue curve intersects average cost curve.

24. D

If firm produces where P(AR)=MC, it will produce an output 'og' with the price or AR 'ob'. On the other hand, AC at this output will be 'od'.

Average loss = AC - AR = od - ob = bd
Quantity = og
Total loss = Average loss × Quantity = bd × og

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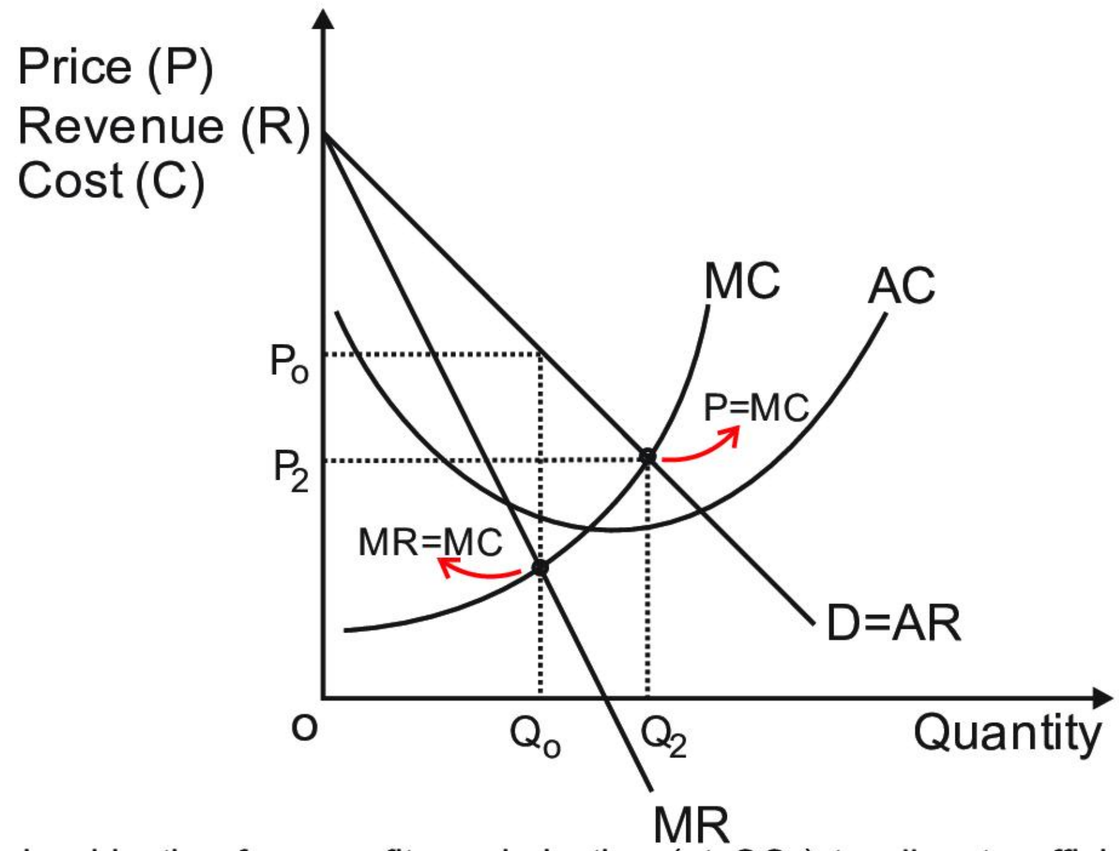
25. B
Marginal cost pricing is where P = AR is equal to MC which is shown in option B.

26. B
This can be explained through diagram below



From the diagram, change in objective from profit maximization (at OQ_0) to allocate efficiency (At OQ_2) will increase output. However it will lead to decrease in profits because profit was maximized at MR = MC. But choosing the point where P = AR = MC, the profits will decrease.

27. B

28. C

29. B
By maximizing revenues, profits will decrease because firm will not produce at profit /maximizing point. This will lead to decrease in demand of shares which will decrease the price of shares.

30. C

31. C

32. C
Revenue maximization rule states that revenue is maximized where marginal revenue is zero.

33. C
According to profit maximization rule, profit is maximized where MR=MC.
According to revenue maximization, profit is maximized where MR=0
As profit maximizing firm is also maximizing its revenue therefore it will produce the quantity where MR=0
Substituting MR=0 in MR=MC
0=MC
Hence the marginal cost will also be equal to zero.

34. A
The question states that there is fixed cost but no variable cost. This means that the marginal cost for the firm is zero. According to profit maximizing rule, profit is maximized where
MR = MC
As MC = 0
therefore MR = 0
This shows that the firm is following revenue maximization to earn maximum profits.

35. C
For the fishmonger the marginal cost for 50 kilos of unsold fish is zero. As mentioned in question, the fishmonger throws away unsold fish which means there is no additional cost per unit. The fishmonger will maximize profits where marginal revenue is equal to marginal cost.
Hence
MR = MC and in this case MC = 0
therefore MR = 0
As MR=0 shows revenue maximization, therefore a fishmonger should set a price to maximize total revenue.

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36. C

In order to eliminate competition, a firm may use predatory pricing and may even lower its product's price below its average cost. Hence, reducing profit or even temporary losses will be the right strategy to achieve this objective.

37. C

Normal profits occur when total revenue is equal to total cost or average revenue (price) is equal to average cost.

As per statement,

AVC = $ 2

FC = $ 80,000

$$\text{AFC} = \frac{80,000}{20,000} = \$4$$

Average Total Cost= $2 + $4 = $6

Therefore, in order to earn normal profit a firm needs to set a price of $ 6.

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9.2 Price discrimination

1. M/J 16/P31/Q10
What is necessary for price discrimination to be profitable?

A There must be many buyers.
B There must be markets with different price elasticities of demand.
C There must be product differentiation.
D There must be separate markets.

2. M/J 02/P3/Q14, Dec 81
A firm produces only one product. Under which condition is it most likely to be able to pursue a policy of price discrimination?

A Both price and marginal revenue are identical in all markets.
B It is benefiting from economies of scale.
C Its product has a low elasticity of demand.
D There are separate and distinct markets for its product.

3. O/N 12/P32/Q12, O/N 07/P3/Q12
Instead of charging all its customers the same price, a firm decides to charge different prices in different markets.
How is this likely to affect consumer surplus and the firm's marketing costs?

	consumer surplus	marketing costs
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

4. O/N 11/P31/Q9, O/N 11/P33/Q8
Which practices would be classified as price discrimination?

	charging higher rail fares for peak period travel to meet the additional costs of train companies	charging lower return fares from Kuala Lumpur to Hong Kong for passengers who stay overnight on a Saturday in Hong Kong
A	no	no
B	no	yes
C	yes	no
D	yes	yes

5. O/N 11/P32/Q10
Which would be **least** likely to practise price discrimination?

A a baker
B a cinema
C a hairdressing salon
D a restaurant

6. M/J 11/P32/Q9
A firm is engaging in price discrimination.
In order to maximise profits, what should the firm do?

A charge a higher price to consumers earning higher incomes
B charge a higher price to consumers earning lower incomes
C charge a higher price to consumers whose demand for the product is price inelastic
D charge a higher price to consumers whose demand for the product is price elastic

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7. M/J 08/P3/Q11

Why might a firm introduce a policy of price discrimination?

A to achieve allocative efficiency

B to achieve productive efficiency

C to avoid diseconomies of scale

D to turn consumer surplus into producer surplus

8. O/N 10/P32/Q12, O/N 14/P32/Q14

A firm wishes to acquire some of the consumer surplus its customers currently enjoy. How might it achieve this?

A by charging a price that maximises revenue

B by introducing price discrimination

C by reducing operating costs

D by taking advantage of economies of scale

9. O/N 04/P3/Q15

A discriminating monopolist, faced with two demand curves of differing elasticity, will equate the combined marginal cost of production with

A marginal revenue in each market.

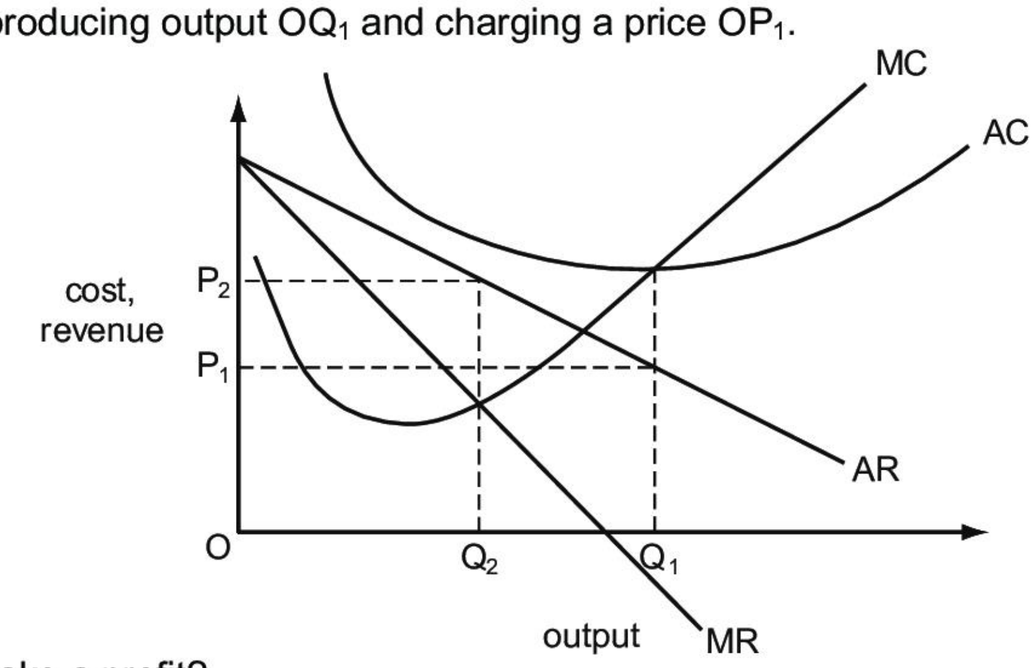
B average revenue in each market.

C the difference between the marginal revenues in the two markets.

D the difference between the average revenues in the two markets.

10. M/J 04/P3/Q9

The diagram shows the cost and revenue curves of a monopolist.
The monopolist is currently producing output OQ_1 and charging a price OP_1.



How might the monopolist make a profit?

A by adopting marginal cost pricing

B by maximising sales revenue

C by practising price discrimination

D by reducing output to OQ_2 and charging price OP_2

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Answers Section

1. B
Conditions for price discrimination include
- Firm must be price maker.
- There should be difference of price elasticity of demand between the markets.
- Markets should be kept separate, i.e., prohibited resale.
Among the options, B is the answer.

2. D
Conditions for price discrimination include
- Firm must be price maker.
- There should be difference of price elasticity of demand between the markets.
- Markets should be kept separate, i.e., prohibited resale.
Among the options, D is the answer.

3. B
Consumer surplus is willingness of the consumer to pay for a product and the price actually paid for it. So if a consumer is willing to pay a higher price for a product and the firm in turn charges it a higher price, the difference becomes smaller. Thus consumer surplus becomes smaller. On the other hand the firm will have to spend extensive resources on marketing to maintain sales in different markets.

4. B
For price discrimination, cost must be same and firm only charges different prices if elastic and inelastic markets can be kept seperate. Hence B will be the answer.

5. A
Cinemas and hairdressing salons have been known for offering discounts for different age brackets. Cinemas normally lower ticket prices for senior citizens whereas hairdressing salons offer discounts to students. Restaurants try to lure customers during unusual hours such as midnight. So the least likely firm to discriminate is a baker.

6. C
In order to engage in price discrimination, a firm will charge higher price in a market with inelastic demand whereas it will charge a lower price in a market having elastic demand.

7. D
Price discrimination is used to exploit the use of elasticities of demand in various markets. The firm can reduce price in a market having elastic demand to increase its revenue whereas increase its price in another market which has inelastic demand. In this way, the firm converts the consumer surplus into producer surplus by charging a higher price in a market having inelastic demand.

8. B
Consumer surplus is the difference between what the consumer is willing to pay and what he actually pays. Price discrimination is the act of charging consumers different prices for same good or services. This reduces consumer surplus since the firm will charge a higher price to consumers who are willing to pay more. Reducing operating costs and taking advantage of economies of scale will help in increasing profits but not capturing more consumer surplus. So option A is correct.

9. A
A discriminating monopolist will aim to maximize its profits while still practicing price discrimination. Therefore it will set a price where its marginal cost equals marginal revenue separately in each market as mentioned in option A.

10. C
The diagram shown that the firm will earn loss at each level of output because AC is greater than AR at each level of output. Therefore firm needs to split its market according to price elasticity's of demand. It should increase price in market having inelastic demand for its product while keeping a lower price in elastic demand market. In this way, it can increases its total revenue while keeping cost unchanged. This will increase profits or minimize losses.

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9.3 Contestable markets

1. **O/N 15/P33/Q13**
   An industry has an oligopolistic structure, but operates in a market which is highly contestable.
   What is most likely to result?
   A Collectively, the firms will behave like a monopoly.
   B Firms will earn normal profits in the long run.
   C Government price regulation will be required to prevent the exploitation of consumers.
   D There will be substantial barriers to the entry of new firms.

2. **M/J 11/P32/Q8**
   What is the likely outcome for producers and consumers when a market moves from being non-contestable to being a contestable market?

	producers	consumers
A	gain from higher prices	gain from a wider choice of products
B	gain from likely higher profits	lose from likely higher prices
C	lose from likely lower output	lose from a reduced choice of products
D	lose from likely lower profits	gain from lower prices

3. **M/J 10/P32/Q9**
   In the absence of regulation, why is it likely that the market for air travel on the Singapore-Sydney route would be highly contestable?
   A An airline entering the market would lose little if it later exited that market.
   B The airline industry's capacity to expand its operations in the short-run is limited.
   C The demand for air travel on the Singapore-Sydney route is price-elastic.
   D There is no effective substitute for air travel for journeys between Singapore and Sydney.

4. **O/N 16/P32/Q11, M/J 12/P31/Q11**
   Which condition must apply before a market can be regarded as perfectly contestable?
   A All firms in the industry produce an identical product.
   B All firms in the industry are price-takers.
   C There are a large number of firms in the industry.
   D There are zero costs of entry to, and exit from, the industry.

5. **O/N 08/P3/Q9**
   Which feature does a contestable market share with a perfectly competitive market?
   A Firms must be price takers.
   B Firms must operate on a small scale.
   C There must be freedom of entry to and exit from the industry.
   D There must be many firms in the industry.

6. **O/N 06/P3/Q11, M/J 09/P32/Q10**
   Which assumption is essential for a market to be contestable?
   A The market is supplied by a large number of firms.
   B Firms are free to enter and leave the market.
   C Firms cannot earn abnormal profits in the short run.
   D Firms produce differentiated goods.

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7. M/J 06/P3/Q11
A firm charges the maximum price it is able to charge without attracting competition from new entrants.
In which type of market does this firm operate?

A a contestable market
B a monopolistically competitive market
C a monopolistic market
D a perfectly competitive market

8. M/J 05/P3/Q12
What determines the contest-ability of a market?

A the degree of differentiation of the product
B the costs of entry and exit
C the price elasticity of demand for the product
D the number of firms in the industry

9. O/N 16/P33/Q11, O/N 13/P31/Q11
A market structure in which a small number of firms face competition from potential entrants.
What does this describe?

A a contestable market
B a monopoly
C perfect oligopoly
D monopolistic competition

10. M/J 04/P3/Q8
A firm operates in a contestable market.
Which statement correctly describes the firm's conduct?

A It will set a price to maximise profits in the short run.
B It will set a price to maximise its revenue.
C It will set a price to deter the entry of new firms.
D It will produce at minimum average cost.

11. M/J 02/P3/Q9
What is the essential feature of a contestable market?

A ease of entry and exit.
B interdependence between firms.
C large number of buyers and sellers.
D product homogeneity.

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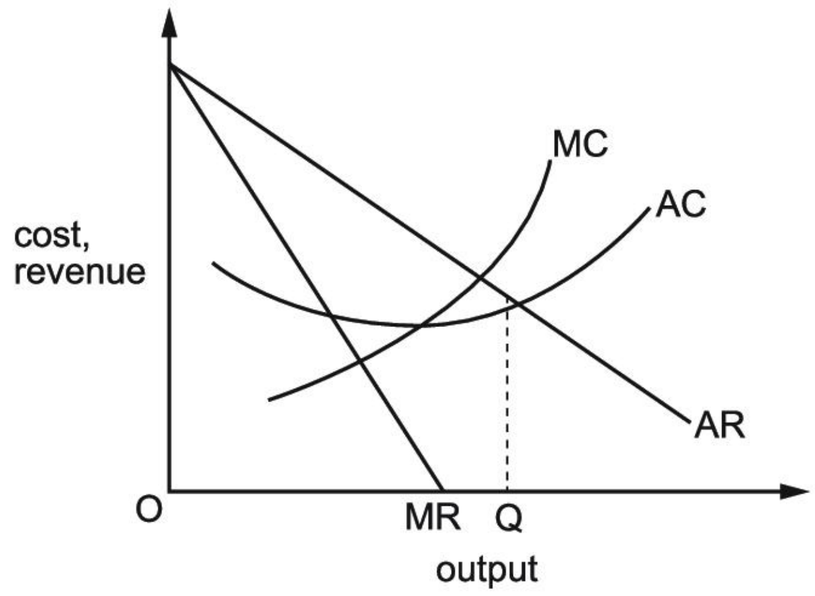
12. O/N 14/P33/Q9, O/N 07/P3/Q10

The diagram shows a firm's cost and revenue curves.



What could explain why the firm produces output OQ?

A It is operating in a perfectly competitive market.

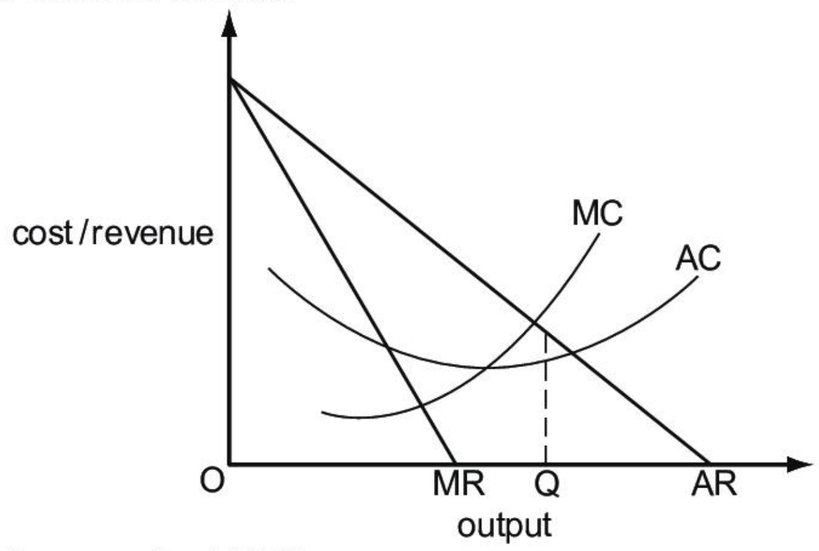
B It is seeking to achieve satisfying profits.

C It is seeking to maximise profits.

D It is seeking to maximise sales revenue.

13. O/N 10/P32/Q9

The diagram shows a firm's cost and revenue curves.



What could explain why the firm produces output OQ?

A Its aim is to maximise profits.

B Its aim is to maximise sales revenue.

C It is operating in a contestable market.

D It is operating in a perfectly competitive market.

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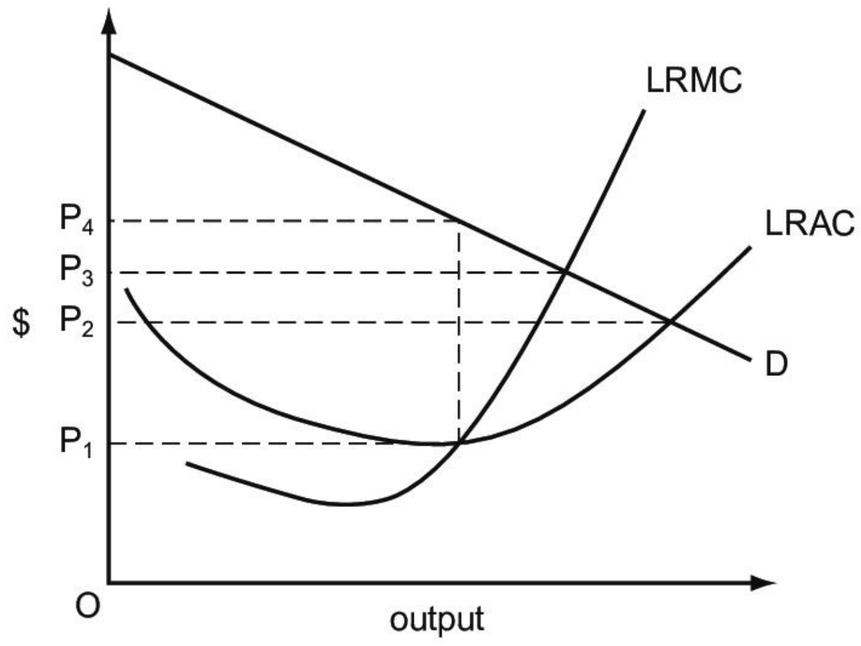
14. O/N 05/P3/Q12

The diagram shows the demand curve and the long-run cost curves of a firm that operates in a perfectly contestable market.

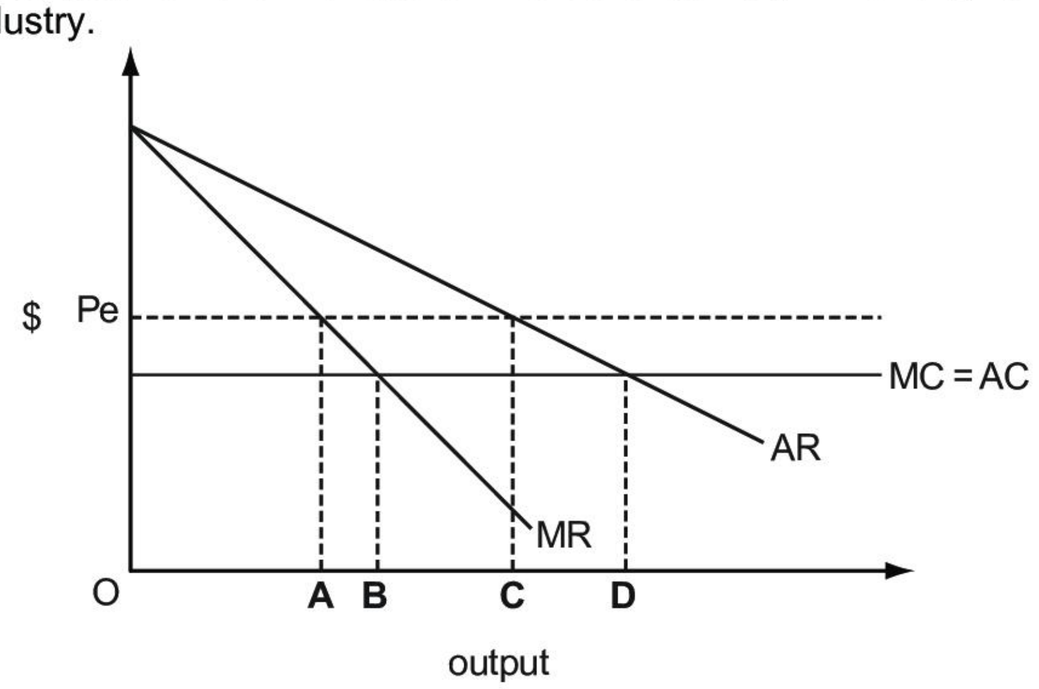


Which price will the firm charge for its product?

A OP_1 **B** OP_2 **C** OP_3 **D** OP_4

15. O/N 09/P32/Q11

The diagram shows the short-run position of a monopolist who believes that, in the long run, excessive profits might attract new entrants to the industry.



If the monopolist believes that at prices above **Pe** new competitors would enter, which output would he choose to protect his long-run profits?

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Answers Section

1. B
In contestable markets, due to free entry and exit, firms earn normal profits in long run. Therefore B is correct option.

2. D
A non contestable market will typically maximize profits. In contestable markets, firms will earn normal profits. In this case, producer will lose because their profits are reduced. They are no longer producing at profit maximizing point. Customers will gain because prices have been reduced and they can buy more quantity.

3. A
In absence of regulations, there would be no barriers to entry and exit. The airlines will not have to pay significant costs for entry and exit and therefore there are minimal sunk costs. Hence these features make this market highly contestable.

4. D
In a contestable market, there are very low or no sunk costs. There is free entry and exit and firms earn normal or slightly higher than normal profits. Firms may practice limit pricing. Hence, D is correct option.

5. C
A contestable market practices limit pricing, has very low sunk costs, earn normal profits and has free entry and exit. In perfect competition all firms earn normal profits in the long run and the industry has free entry and exit. Among all options, C is the right choice.

6. B
In a contestable market, there are very low or no sunk costs. There is free entry and exit and firms earn normal or slightly higher than normal profits. Firms may practice limit pricing. Hence, B is correct option.

7. A
When a firm charges a maximum price in such a way that is able to deter new entrants, such pricing is called limit pricing and it is an essential characteristic of contestable market.

8. B
A major factor in determination of contest-ability of a market is determination of the costs. There is free entry and exit in contestable markets. Moreover, contestable markets have very low or no sunk costs. Sunk costs are those costs that do not recover at the time exit.

9. A
In contestable market small number of firms face competition from potential entrants as there are very low or no sunk cots. There is free entry and exit and all firms earn normal or slightly higher than normal profits. Firms may practice limit pricing. Hence, A is correct option.

10. C
When a firm charges a maximum price in such a way that is able to deter new entrants, such pricing is called limit pricing and it is an essential characteristic of contestable market. Hence, C option it the answer.

11. A
In contestable market there are very low or no sunk cots. There is free entry and exit and all firms earn normal or slightly higher than normal profits. Firms may practice limit pricing. Hence, A is correct option.

12. B
At OQ, the profits are not maximized because MRmMC. Moreover revenue are also not maximized because at OQ, MRm0. The firm is not earning normal profit because ARmAC at output OQ. Hence, It is seeking to achieve satisfying profits.

13. C
At OQ, the firm is earning slightly higher than normal profits therefore it is neither maximizing profits, nor revenue. Moreover, the MC (Supply) curve is not intersecting AR (Demand) curve so the firm is not producing according to the demand and supply of perfectly competitive market either. As all contestable market earn normal or slightly higher than normal profits using limit pricing, therefore the firm is operating in a contestable market.

14. B
In contestable markets, all firms earns normal profits. This is the situation where average revenue will equal to long run average cost (LRAC). As demand is equal to average revenue or price, therefore, the firm will charge a price of OP_2.

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15. C

To deter the entry of new entrants and protect his long-run profits, monopolist should charge price P_e and corresponding output for this price will P_e where Pc dotted line intersects AR, i.e., Option 'C' as price is always equal to AR.

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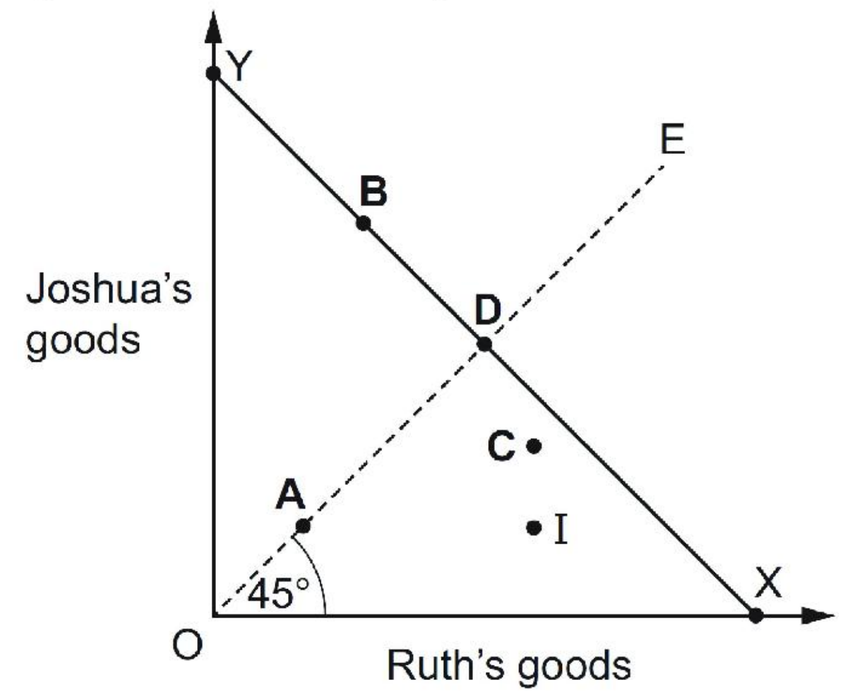
Unit 10 Economic efficiency & market failure

10.1 Economic efficiency

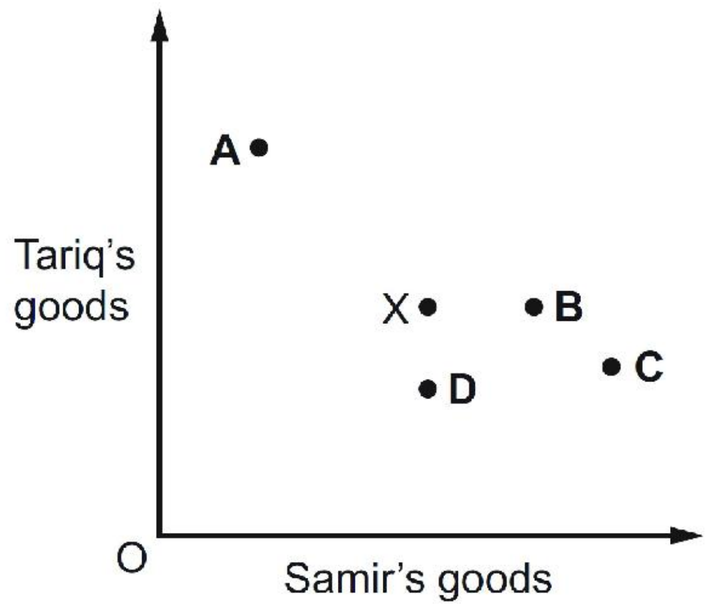
1. M/J 16/P31/Q2

Joshua and Ruth are a remote island's only residents.
The line XY in the diagram shows the maximum amount of goods that are available to Joshua and Ruth and the line OE indicates points of equal distribution of the goods. Compared to an initial point *I*, which point would result in an increase in economic welfare according to the Pareto Efficiency Criterion?



2. M/J 16/P32/Q2

The current distribution of goods between two individuals in a two-person economy with given technology and resources is at point X. According to the Pareto criterion, which point would definitely indicate increased allocative efficiency?



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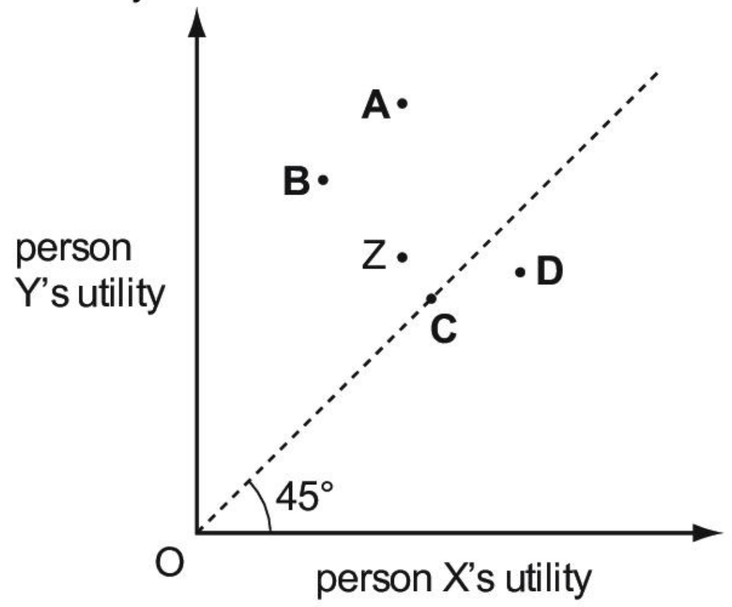
3. O/N 08/P3/Q2

The diagram shows the levels of utility corresponding to different allocations of resources between two people. The initial allocation is **Z**.

Which reallocation of resources would definitely be more Pareto efficient?



4. M/J 16/P31/Q1

A firm increases its production.

When will this result in efficiency?

A when the cost of producing the last extra unit equals the value the consumers place on it

B when the cost of producing the last extra unit is at a minimum

C when the total cost of production equals the value that consumers place on the total product

D when the total revenue reaches a maximum

5. M/J 16/P32/Q1

What action by a firm is most likely to raise its dynamic efficiency?

A distributing all its current profit to its existing shareholders

B maximising the labour productivity of its current workers

C minimising the average cost of producing its current output

D retaining its current profit for product research and development

6. M/J 16/P33/Q1

Which statement is not usually associated with the achievement of economic efficiency?

A There is efficiency in consumption if there is no way to redistribute goods among consumers that makes some consumers better off without making others worse off.

B There is efficiency in output levels if there is no different mix of output that would make some people better off without making others worse off.

C There is efficiency in pricing if there is no other pattern of prices that would make some producers better off without making others worse off.

D There is efficiency in production if there is no way to produce more of some goods without producing less of other goods.

7. O/N 15/P31/Q1

An economy is said to be economically inefficient if

A it is possible to make some people better off without making other people worse off.

B the distribution of income is socially unacceptable.

C the government sector is growing at the expense of the private sector.

D wage rates rise faster than production.

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8. O/N 15/P33/Q1, O/N 12/P31/Q1, M/J 07/P32/Q1

In an economy, no one can be made better off without making someone else worse off.
What does not necessarily follow from this?

A The conditions for allocative efficiency have been met.

B The conditions for productive efficiency have been met.

C The distribution of income is socially acceptable.

D The economy is operating at a point on its production possibility frontier.

9. M/J 15/P33/Q1, M/J 12/P32/Q1

When is economic efficiency achieved in an economy?

A when nobody can become better off without somebody else becoming worse off

B when the economy is operating at its natural rate of unemployment

C when the level of social costs is minimised

D when the rate of economic growth is maximised

10. O/N 14/P32/Q1

Which condition defines productive efficiency?

A All factors of production are fully employed.

B All firms are producing at their profit-maximising levels of output.

C There are no further opportunities for substituting capital for labour.

D The output of all goods is produced at the lowest possible cost.

11. O/N 13/P32/Q1

What is the purpose of trying to achieve economic efficiency?

A to ensure that economic decisions are made equitably

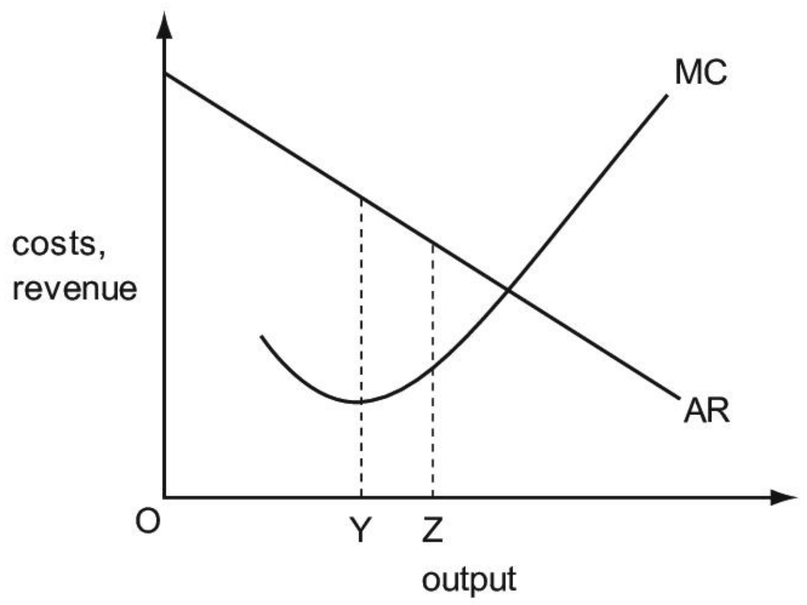
B to ensure that firms are internationally competitive

C to ensure that firms maximise their profit levels

D to ensure that the economy does not waste scarce resources

12. O/N 13/P33/Q1

In the diagram, a firm increases its output from OY to OZ.



Which statement about the effect on economic efficiency is correct?

A It will increase because a greater quantity will be produced and higher total revenue will be earned.

B It will increase because the value that consumers place on the product comes closer to the cost of producing the last unit.

C It will decline because both average and marginal revenue will fall.

D It will decline because both total and marginal cost will rise.

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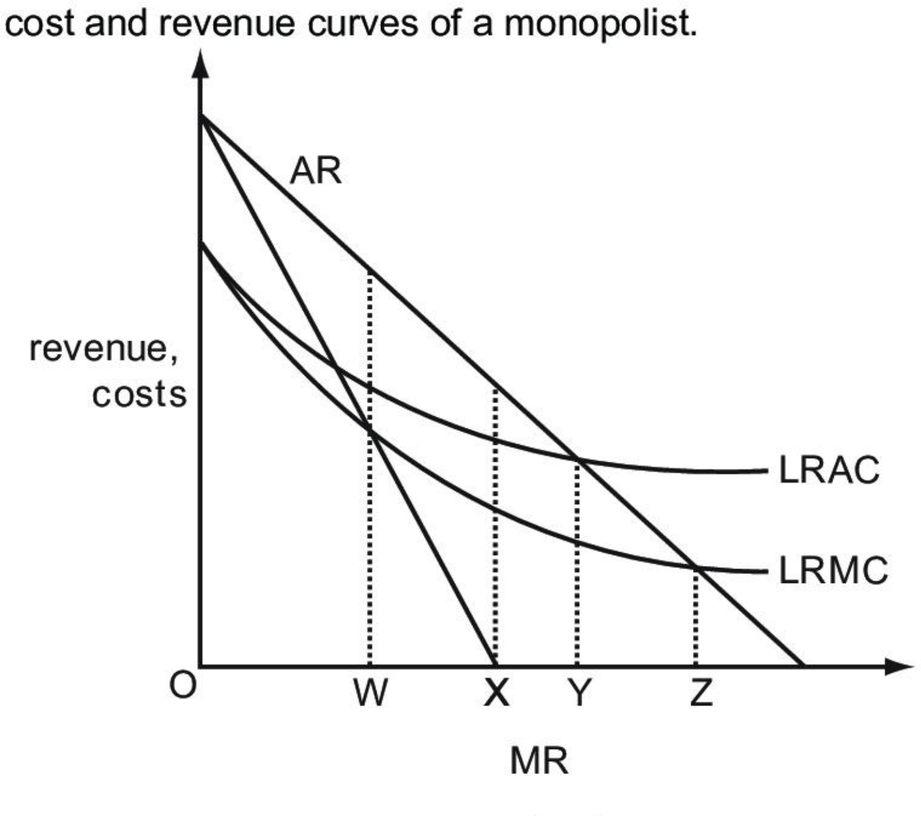
13. M/J 12/P32/Q16

The diagram shows the long-run cost and revenue curves of a monopolist.



Which level of output satisfies the condition for an efficient allocation of resources?

A OW **B** OX **C** OY **D** OZ

14. O/N 12/P33/Q13, M/J 04/P3/Q1

What does not pose a threat to the achievement of allocative efficiency?

A imperfect information on the part of consumers

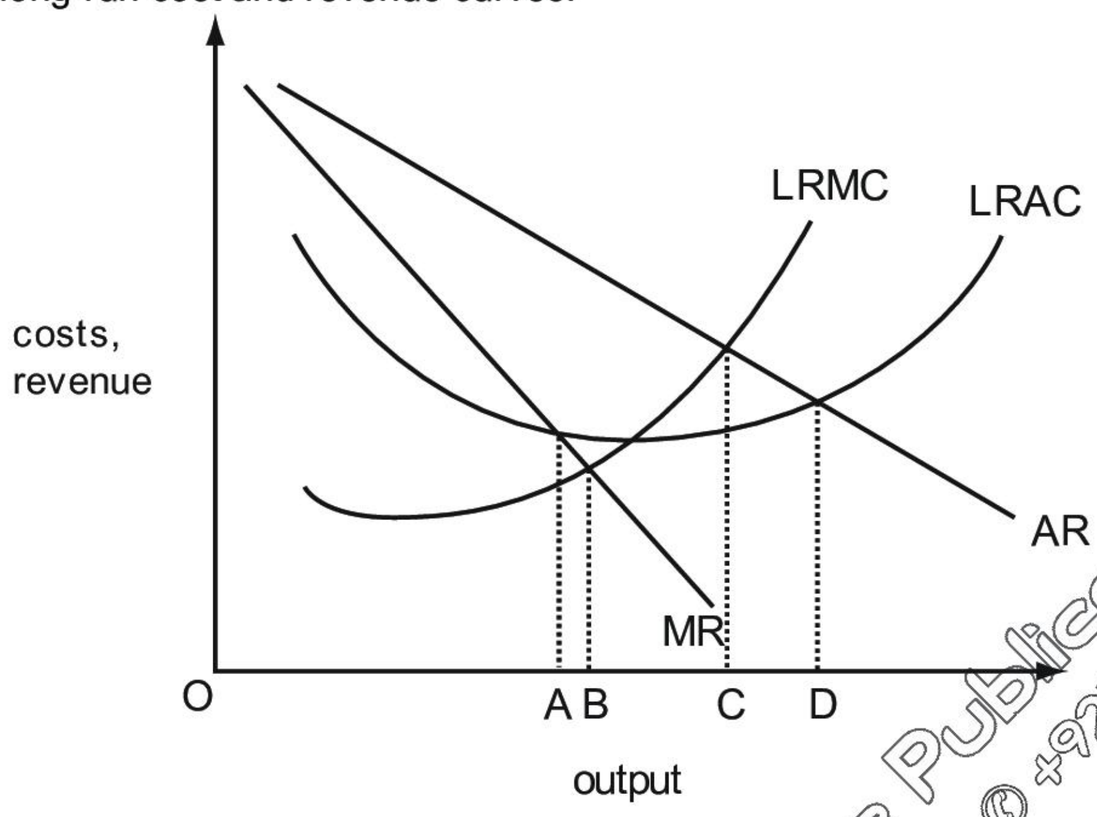
B income inequalities

C the existence of externalities

D the presence of monopolistic elements

15. M/J 18/P31/Q3, O/N 11/P32/Q2

The diagram shows a firm's long-run cost and revenue curves.



At which level of output is the firm both allocatively and productively efficient?

A OA **B** OB **C** OC **D** OD

16. O/N 03/P3/Q17

By reallocating resources an economy produces more of one good but no less of other goods.
What change has necessarily occurred?

A improved technology

B improved efficiency

C increased equity

D increased employment

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17. O/N 02/P3/Q11

When is allocative efficiency achieved in an economy?

A when nobody can become better off without somebody else becoming worse off

B when the economy is operating at its natural rate of unemployment

C when the level of social costs is minimised

D when the rate of economic growth is maximized

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Answers Section

1. C
According to the Pareto Efficiency criterion,economic welfare will increase only if someone is made better off without making someone else worse off. Moving from point 'I' to point 'C' will raise the welfare (utility) of Joshua without reducing the welfare (utility) of Ruth.

2. B
According to the Pareto criterion,allocative efficiency will increase only if someone is made better off without making someone else worse off. Moving from point 'X' to point 'B' will raise the welfare (utility) of Samir without reducing the welfare (utility) of Tariq.

3. A
Pareto optimality will increase only if someone is made better off without making someone else worse off. Moving from point 'Z' to point 'A' will raise the welfare (utility) of person 'Z' without reducing the welfare (utility) of person 'X'.

4. A
Efficient allocation of resources occurs where consumers pay for the good as much as it costs to make it. The marginal cost is the extra cost associated with producing the good whereas the price represents the value the consumers place on it.

5. D
Dynamic efficiency means product and process innovation through research and development. Hence D is correct option.

6. C
Economic efficiency (Pareto optimality) is achieved when:
- when the proportions in each market the price paid for the good or service fully reflects the lowest economic cost of supplying it.
- It is impossible to make someone better off without making someone else worse off.
- Consumers pay for the good as much as it costs to make it
- MSB = MSC

Correct answer is C. Distribution of goods is equity concern rather than efficiency and therefore A can not be correct.

7. A
Economic efficiency (Pareto optimality) is achieved when:
- when the proportions in each market the price paid for the good or service fully reflects the lowest economic cost of supplying it.
- It is impossible to make someone better off without making someone else worse off.
- Consumers pay for the good as much as it costs to make it
- MSB = MSC

Hence, correct answer is A.

8. C
Above statement is the definition of economic efficiency with Pareto criterion. Only thing that does not concern efficiency is distribution of income and wealth as it is equity issue. Hence C is correct answer.

9. A
Economic efficiency can be achieved only when, according to Pareto, no one can be made better off without making someone else worse off. So only option A describes the point where economic efficiency is achieved.

10. D
Productive efficiency is defined as when an economy is producing given output at its lowest possible cost. So options A, B and C are incorrect.

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11. D
The basic economic problem is scarcity which is the finite amount of resources to fulfill unlimited needs and wants. Economics attempts to help decision makers allocate resources amongst competing uses. Therefore only option D perfectly targets the problem of scarcity since utilizing resources in the best possible manner will ensure wastage is minimized.

12. B
Efficient allocation of resources occurs where consumers pay for the good as much as it costs to make it. The marginal cost is the extra cost associated with producing the good whereas the AR curve represents the demand curve. So where the two curves intersect will be the point where efficient allocation of resources occurs, thus increase of output from OY to OZ will increase efficiency..

13. D
Efficient allocation of resources occurs where consumers pay for the good as much as it costs to make. The marginal cost is the extra cost associated with producing the good whereas the AR curve represents the demand curve. So where the two curves intersect will be the point where efficient allocation of resources occurs, thus output OZ.

14. B
The presence of income inequalities does not affect the marginal cost or benefit of society. Therefore it is unrelated to allocative inefficiency.

15. C
All profit maximising firms are productive efficient in long run and all points of production on LRAC are productive efficient. Therefore only concern is allocative efficiency in this case.
A firm is allocatively efficient when the price of a good is equal to the marginal cost of producing that good. So the price of a good is determined by the demand curve which is also the AR curve. The additional cost of producing a good is the LRMC curve since marginal cost by definition is the cost incurred for making one more unit of output. So where the two curves intersect, P=LRMC, is the correct answer (option C).

16. B
When more of one good can be produced without sacrificing other, there is room for improvement in efficiency.

17. A
As per definition allocative efficiency is achieved when it is impossible to make someone better off without making someone else worse off.

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10.2 PPC & economic efficiency

1. M/J 15/P31/Q1

An economy reallocates resources and moves along its production possibility frontier. It increases production of necessity goods and reduces production of luxury goods. The marginal utility of the consumers of the additional necessity goods produced is greater than the marginal utility of the consumers of the luxury goods that are no longer produced.

What is the effect on the economic efficiency of the economy?

	productive efficiency	allocative efficiency
A	increases	increases
B	increases	unchanged
C	unchanged	Increases
D	unchanged	unchanged

2. O/N 14/P33/Q1

Which statement about efficiency is correct?

A Allocative efficiency occurs when marginal revenue equals marginal cost.

B An economy is productively efficient when it is producing at a point on its production possibility curve.

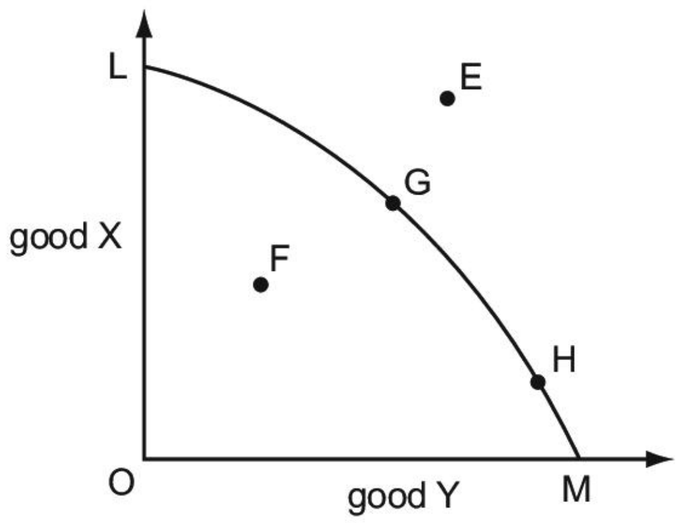
C An economy will improve its allocative efficiency when its production possibility curve moves outward.

D Productive efficiency occurs when the prices of goods equal their marginal cost of production.

3. M/J 14/P33/Q1, M/J 11/P32/Q30

In the diagram, LM is an economy's production possibility curve.

Which statement is correct?



A E only is attainable.

B F is economically efficient.

C G may be economically efficient but is not productively efficient.

D H is productively efficient but may not be economically efficient.

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4. O/N 12/P33/Q1, O/N 09/P32/Q1, O/N 06

An economy is operating at a point on its production possibility curve. What is true about the way the economy's resources are being used at this point?

	allocatively efficient	productively efficient	socially desirable
A	possibly	yes	yes
B	yes	possibly	possibly
C	possibly	yes	possibly
D	yes	possibly	yes

5. M/J 10/P32/Q30

Which is a correct statement about efficiency?

A Allocative efficiency occurs when marginal revenue equals marginal cost.

B An economy is productively efficient when it is producing at a point on its production possibility curve.

C An economy will improve its allocative efficiency when its production possibility curve moves outward.

D Productive efficiency occurs when the prices of goods equal their marginal cost of production.

6. O/N 10/P32/Q14, O/N 14/P33/Q1

In an economy no one can be made better off without making others worse off.
What can be deduced from this?

A All markets are perfectly competitive.

B There are no externalities.

C The economy is operating on its production possibility curve.

D The distribution of income reflects what each individual deserves.

7. O/N 03/P3/Q1

An economy is operating at a point inside its production possibility curve.
Why is this described as inefficient?

A Individuals are enjoying too much leisure.

B Labour and capital are combined in the wrong proportions.

C More of one good can be produced without decreasing production of another.

D There are shortages of some goods and an excess supply of others.

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Answers Section

1. C
If an economy stays on same PPC, there will be no change in productive efficiency. As the marginal utility of the consumers of the additional necessity goods produced is greater than the marginal utility of the consumers of the luxury goods that are no longer produced, therefore there will be an increase in overall economic welfare. Hence, allocative efficiency increased.

2. B
Allocative efficiency occurs when P=AR=MC where as productive efficiency occurs when MC=AC or an economy is producing at its production possibility curve. Hence,only option B is correct.

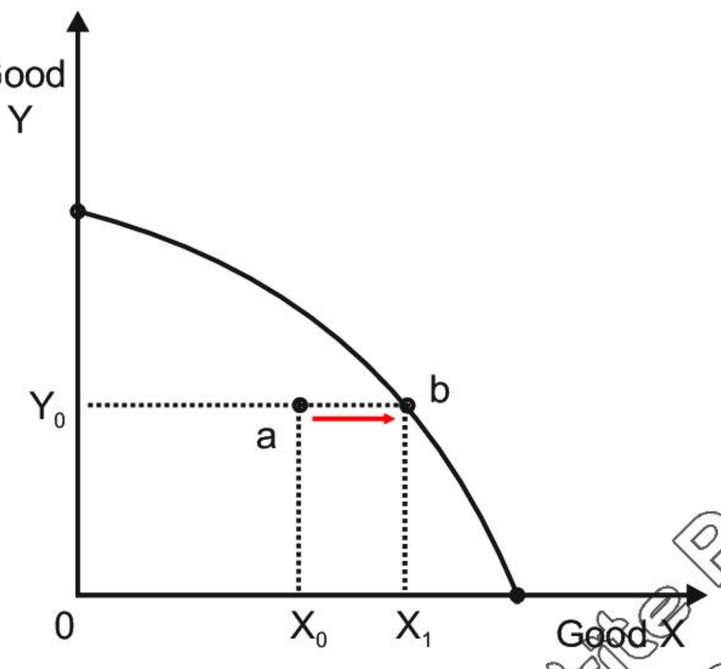
3. D
Among all options D is the right choice because productive efficiency occurs when economy produces on the PPC. All the points on PPC are productively efficient but only one of them is allocatively efficient. Alone PPC is insufficient to determine allocative efficient point.

4. C
All points on PPC are productive efficient but only one of them is allocative efficient. Therefore if an economy is producing at PPC, it is definitely productive efficient but possibly allocative and socially or economically efficient.

5. B
Among all options B is the right choice because productive efficiency occurs when economy produces on the production possibility curve (PPC). All the points on PPC are productive efficient but only one of them is allocative efficient. Alone PPC is insufficient to determine allocative efficient point.

6. C
The distribution of income reflects what each individual is able to buy rather than what he deserves. Absence of positive externalities does not lead to efficient outcomes. Economic efficiency does not depend only over market perfections and imperfections, there are other concerns like merit, demerit and public goods etc.
Only thing we can deduce is If the economy is operating on its production possibility curve, it would not be possible to make some one better off without making someone else worse off.

7. C
This can be shown through the diagram below:



Productive efficiency means a situation where it is impossible to produce more of one good without sacrifice of other.

Point ‘a’ is below the PPC with the goods X_0 and Y_0 when quantity of X is increased to X_1, the good Y does not have to be sacrificed. Therefore at point ‘a’ there is productive inefficiency because more of one good can be produced without decreasing production of another.

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10.3 Socially optimum output & types of market failure

1. M/J 16/P32/Q3

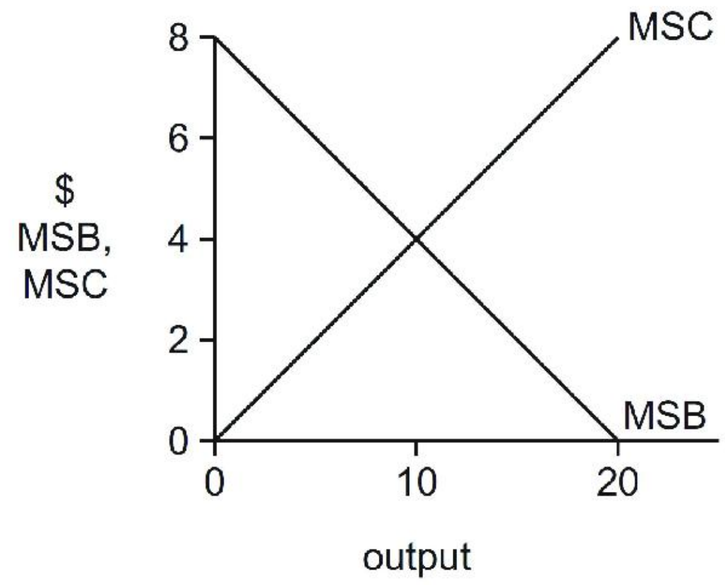
The concept of allocative efficiency assumes that each individual in society is the best judge of their own economic welfare.

Which example of government intervention is based on an argument which rejects this assumption?

A pollution controls
B subsidies for merit goods
C the provision of public goods
D the regulation of monopolies

2. M/J 16/P33/Q3

The diagram shows the marginal social benefit (MSB) and marginal social cost (MSC) from a production process.



What is the socially desirable level of output?

A at 0 units because MSC is zero
B between 0 and 10 units because MSB is greater than MSC
C at 10 units because MSB equals MSC
D at 20 units because MSB is exhausted

3. O/N 14/P14/Q16

A good gives rise to external benefits and is produced under conditions of monopolistic competition.

Which statement must be correct?

A Output of the good is at the socially optimum level.
B Output of the good is above the socially optimum level.
C Private costs exceed social benefits.
D Social benefits exceed private benefits.

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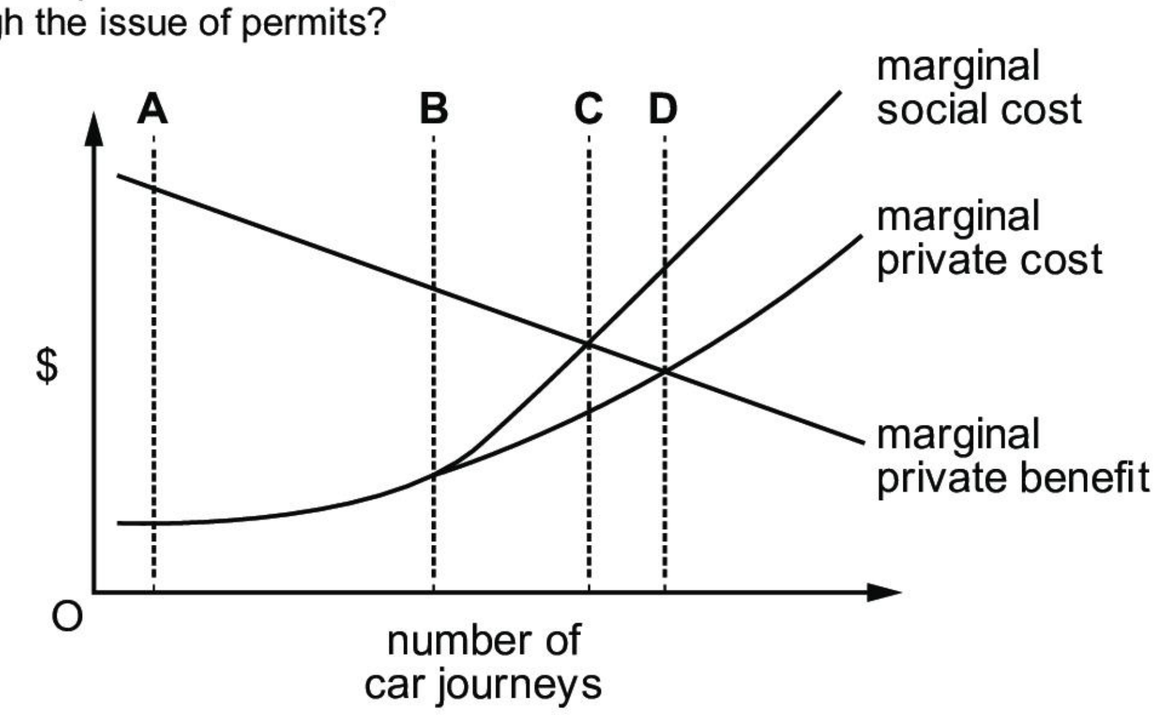
4. O/N 14/P32/Q18

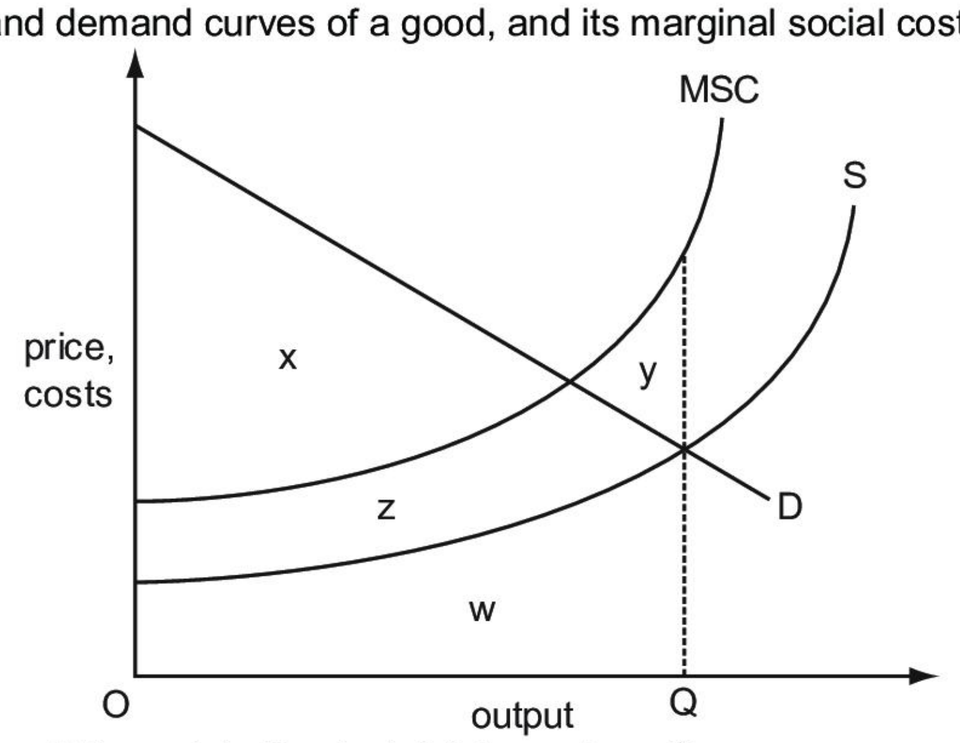
The diagram shows the private and social costs and the private benefits that arise as the number of car journeys into a city centre increases.

In the absence of any external benefits, which volume of traffic would maximise the community's welfare if entry could be restricted through the issue of permits?



5. O/N 13/P33/Q13

The diagram shows the supply and demand curves of a good, and its marginal social cost of production (MSC).



Which area measures the net benefit to society if output OQ is produced?

A x
B x + y
C x + z + w
D x – y

6. M/J 12/P31/Q1

Which condition must be met for economic efficiency to be achieved?

A Marginal social costs are zero in the production of all goods.
B Marginal social costs are at a minimum in the production of all goods.
C Marginal social benefits are at a maximum in the production of all goods.
D Marginal social costs equal marginal social benefits in the production of all goods.

7. O/N 12/P32/Q14

All firms in an economy produce at levels of output where price and marginal private cost are equal.

Why might this **not** be sufficient to ensure that allocative efficiency is achieved?

A a small number of buyers and sellers
B differences in consumers' preferences
C product differentiation
D the presence of externalities

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8. O/N 12/P33/Q14

At present, a monopolist is required by the industry regulator to charge a price equal to marginal cost.
The table summarises the consequences if the firm were allowed instead to maximise its profits.

	$million
increase in monopoly profits	5
loss of consumer surplus	8

What would be the resulting deadweight loss?

A $3 million **B** $5 million **C** $8 million **D** $13 million

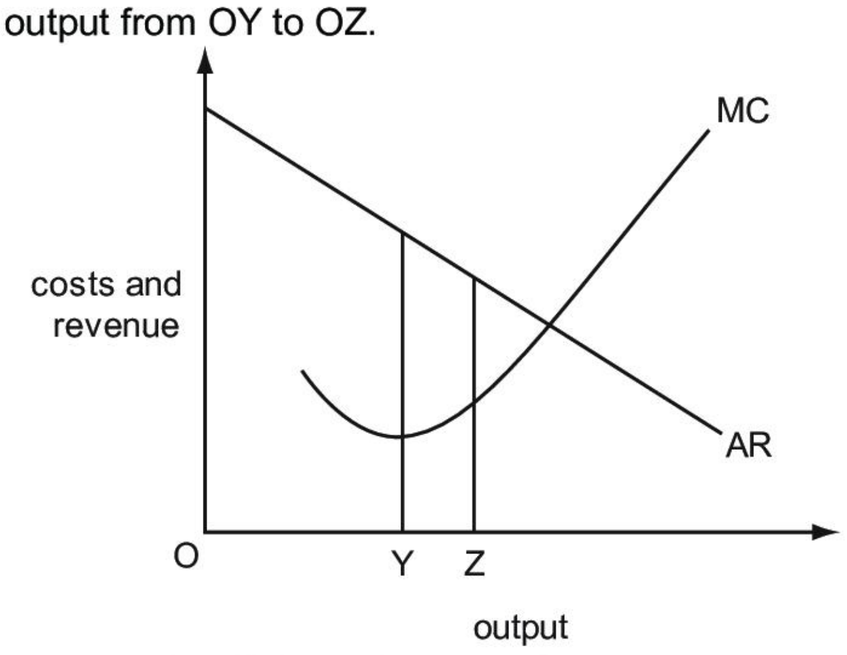
9. O/N 09/P32/Q14

What could prevent a market economy achieving allocative efficiency?

A disagreement among consumers over resource allocation
B inequalities in the distribution of income and wealth
C an inability to produce free goods
D an inability to produce public goods

10. O/N 16/P32/Q2, O/N 13/P33/Q1, O/N 07/P3/Q1

In the diagram, a firm increases its output from OY to OZ.



Which statement about the effect on economic efficiency is correct?

A It will increase because a greater quantity will be produced and higher total revenue will be earned.
B It will increase because the value that consumers place on the product comes closer to the cost of producing the last unit.
C It will decline because both average and marginal revenue will fall.
D It will decline because both total and marginal cost will rise.

11. O/N 04/P3/Q16

What might prevent an economy in which all firms are required to equate price and marginal cost from achieving allocative efficiency?

A differences in preferences between consumers
B divergences between private and social costs
C inequalities of income and wealth
D product differentiation

12. M/J 12/P32/Q15, O/N 04/P3/Q17

A good gives rise to external benefits and is produced under conditions of imperfect competition.
Which statement must be true?

A Consumers of the good are paying too low a price.
B Firms producing the good will make a loss.
C Output of the good is below the socially optimum level.
D Social costs of production exceed private costs.

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13. M/J 03/P3/Q16

In what circumstances will the entry of additional fishing boats into the fishing industry necessarily result in a net loss in welfare?

A The entry of the new boats reduces fish caught by other boats.

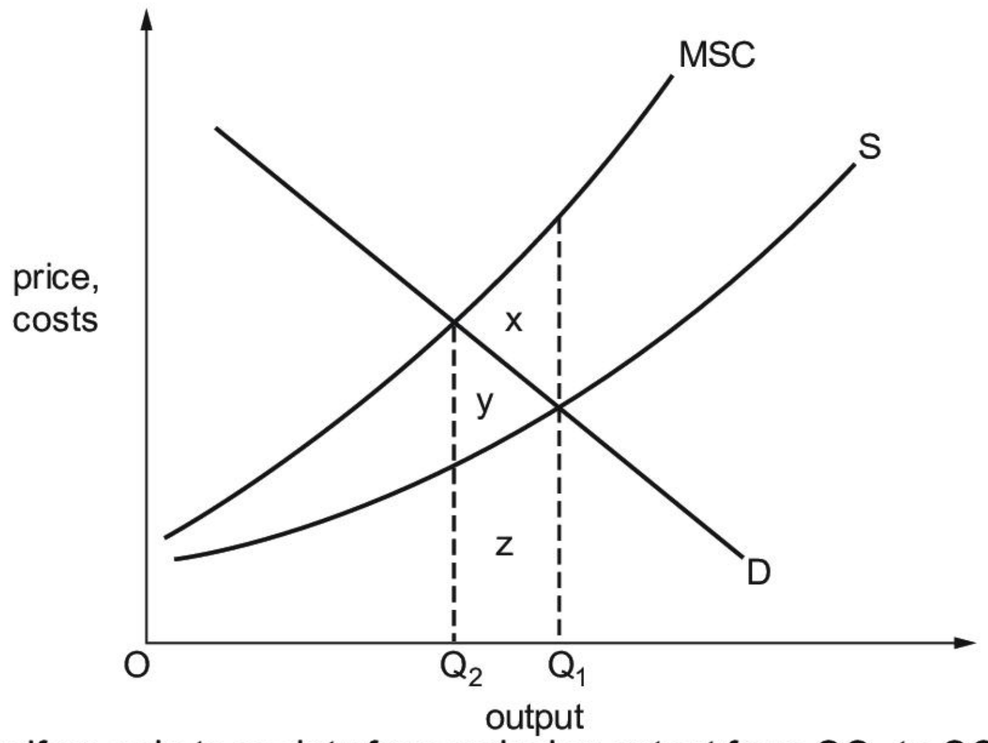
B The entry of the new boats reduces the profits of other boat owners.

C The value of the increase in the fish caught is less than the loss in value of output elsewhere in the economy.

D The entry of the new boats reduces the overall fish stock.

14. O/N 02/P32/Q12

The diagram shows the supply and demand curves for a good. The curve labeled MSC shows the marginal social cost of producing the good.



Which area measures the net welfare gain to society from reducing output from OQ_1 to OQ_2?

A x

B y

C x + y

D x + y + z

15. O/N 07/P32/Q14

What is **not** an example of 'market failure'?

A inequality in the distribution of income

B a monopolist charging prices above marginal cost

C the damage to common land due to overgrazing

D aircraft noise affecting individuals living near airports

16. M/J 16/P33/Q2

A Chinese proverb states that 'One generation plants a tree and the next generation enjoys its shade'.
Which economic concept does the proverb best illustrate?

A comparative advantage

B division of labour

C positive externality

D public good

17. M/J 08/P3/Q13

A good gives rise to external costs and is produced under conditions of monopolistic competition.
Which statement must be true?

A Output of the good is at the socially optimum level.

B Output of the good is below the socially optimum level.

C Private costs of production exceed social costs.

D Social costs of production exceed private costs.

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18. O/N 11/P32/Q13, O/N 15/P33/Q14

What would economists agree should be the aim of any health care system?

A to meet all the health care demands of the population

B to provide every patient with the latest and best available treatment

C to provide free medical treatment

D to secure the maximum health gain from the resources available

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Answers Section

1. B
Merit goods are those for which government believes consumers in society are not the best judges of their own economic welfare and therefore under consume. Government intervenes in the market by providing subsidy for merit goods and therefore rejects the assumption of allocative efficiency.

2. C
Socially desirable level of output is achieved where MSB=MSC and therefore C is the correct answer.

3. D
Presence of external benefits means social benefits exceed private benefits and therefore D is correct answer. With external benefits and monopolistic competition, output is lesser than socially optimum level.

4. C
If there are no external benefits then marginal private benefit equals marginal social benefit. Moreover, in order to maximize the community's welfare marginal social benefit should be equal to marginal social cost. In this that would be option C.

5. D
In the absence of positive externalities, marginal social benefit is equal to marginal private benefit or demand curve.
Here
Social Benefit = å Marginal Social Benefit = x+z+w
Social Cost = å Marginal Social Cost = y+z+w
Hence
Net Social Benefit =Social Benefit - Social Cost = (x+z+w) - (y+z+w) = x-y

6. D
Socially optimum output (which can also be called the economically efficient output) is achieved where MSB = MSC.

7. D
Allocative efficiency refers to a production point where the goods & services are made according to consumer preferences. Even though Price=MPC, that does necessarily mean efficient allocation of resources because there might be a market failure caused by merit goods, demerit goods, public goods or externalities. P=MPC criterion only caters market failure of imperfect markets. Hence D is correct option.

8. A
Dead weight loss will be the difference between the loss of consumer surplus and increase in producer's profit which will be 8 - 5 = $3 million.

9. D
Allocative inefficiency refers to an economy producing the most desirable goods. Option A does not affect allocative inefficiency where option B relates to equity issue. Failure to produce public goods by the market is market failure and an example of allocative inefficiency because the market is not fulfilling the desires of society .

10. B
Economic efficiency is producing where SMB = SMC. When output increase from OY to OZ, economic efficiency increases because it will decrease the gap between marginal benefit (value that consumers place on product) and marginal cost (cost of producing the last unit) but it will not be wholly economically efficient.

11. B
Divergences in private and social costs will cause markets to only acknowledge private costs and therefore markets will produce below or above socially optimum level.

12. C
Under imperfect completion markets produce goods, which give rise to positive externalities, below the socially optimum level.

13. C
Net loss in welfare occurs when Social Marginal Benefit (SMB) is lesser than Social Marginal Cost (SMC). Among all options, the value of the increase in the fish caught (social marginal benefit) is less than the loss in value of output elsewhere (social marginal cost).

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14. A
Net social welfare is maximised where MSC = MSB. In this case, in the absence of positive externalities, D=MPB=MSB. When supply curve shifts from S to MSC, the net welfare gain is area X (the area between MSB and MSC).

15. A
Inequality in distribution is not market failure. It is an equity issue.

16. C
It is positive externality because the activity of one generation benefits another generation which will be considered as third party.

17. D
When a good gives rise to external costs then social cost which include external cost will exceed private costs. Market production will be uncertain as monopolistic competition leads to underproduction where as presence of negative externalities lead to over production. Net effect of both factors will be uncertain.

18. D
An economist always aims for the economy to make best use of whatever resources available. So option D perfectly fits into what economists would agree on. Although other options may seem 'better' it is important to note that it may not be possible that a hospital to meet all health care demand without running large amount of losses and putting a drain on the hospital's finances. Moreover, the other two options are statements that perhaps politicians would agree on.

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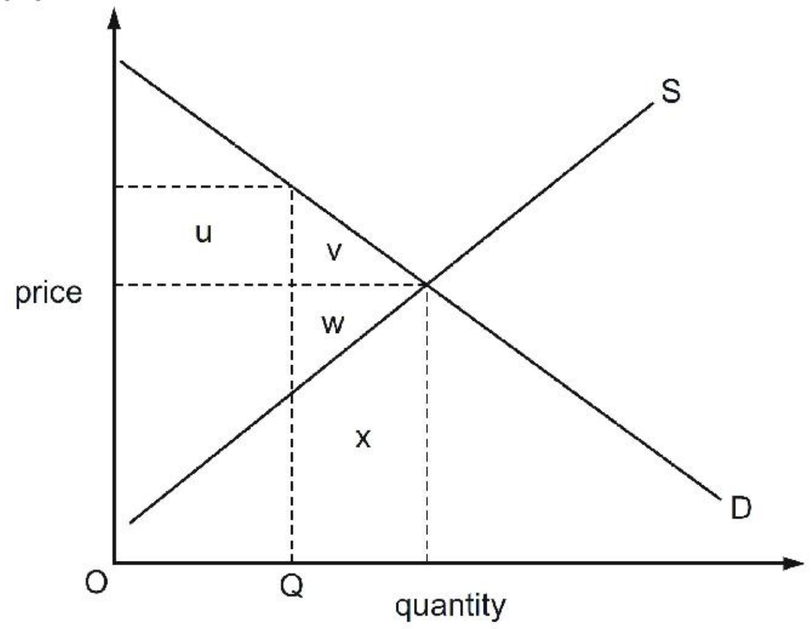
10.4 Imperfect market & market Failure

1. M/J 16/P31/Q18

The diagram shows an industry's supply and demand curves.

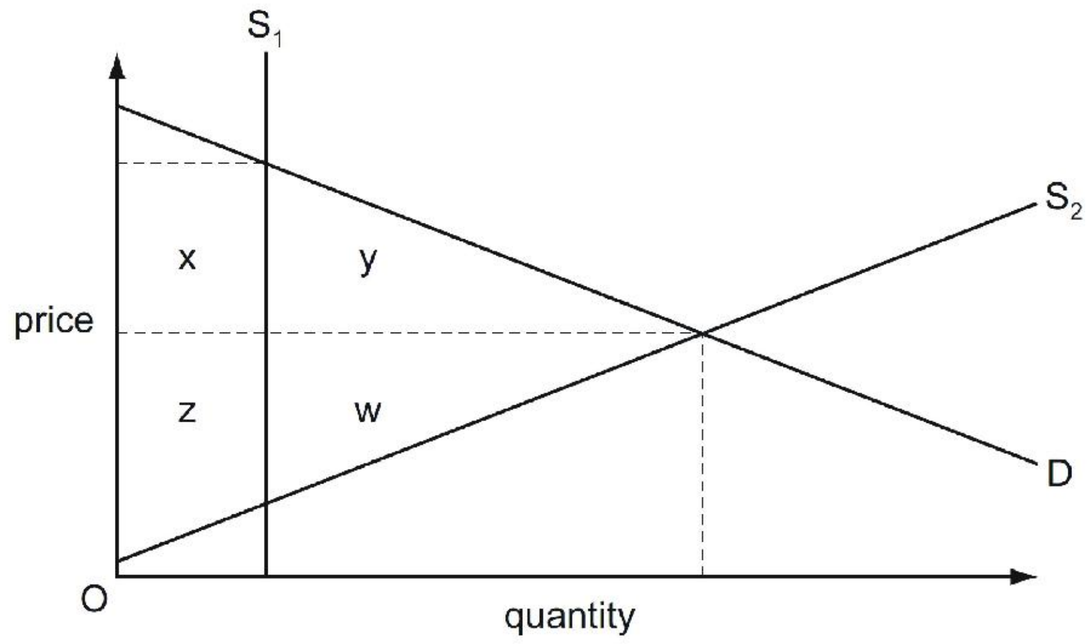


The government initially restricts the quantity to OQ.
The restriction on the quantity is then removed.
In the absence of externalities, which area in the diagram measures the net gain in economic welfare?

A u **B** v **C** v + w **D** v + w + x

2. M/J 16/P33/Q18, O/N 13/P31/Q14

The diagram shows the market for new cars. Currently the quantity supplied is fixed by the government at S_1.



If the market was deregulated the supply curve would be S_2.
Which area measures the net welfare gain of removing the restriction on the quantity supplied?

A w + y **B** x + y **C** z + w **D** z + x + y + w

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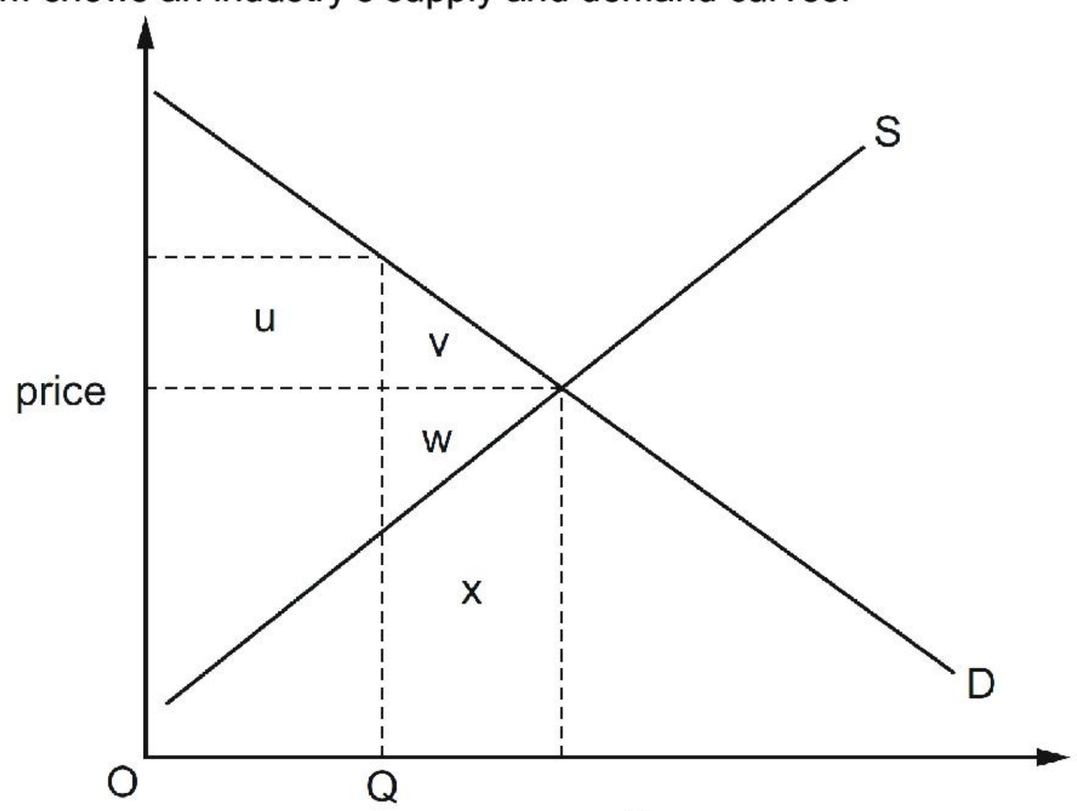
3. O/N 15/P31/Q14, O/N 12/P31/Q14

The diagram shows an industry's supply and demand curves.

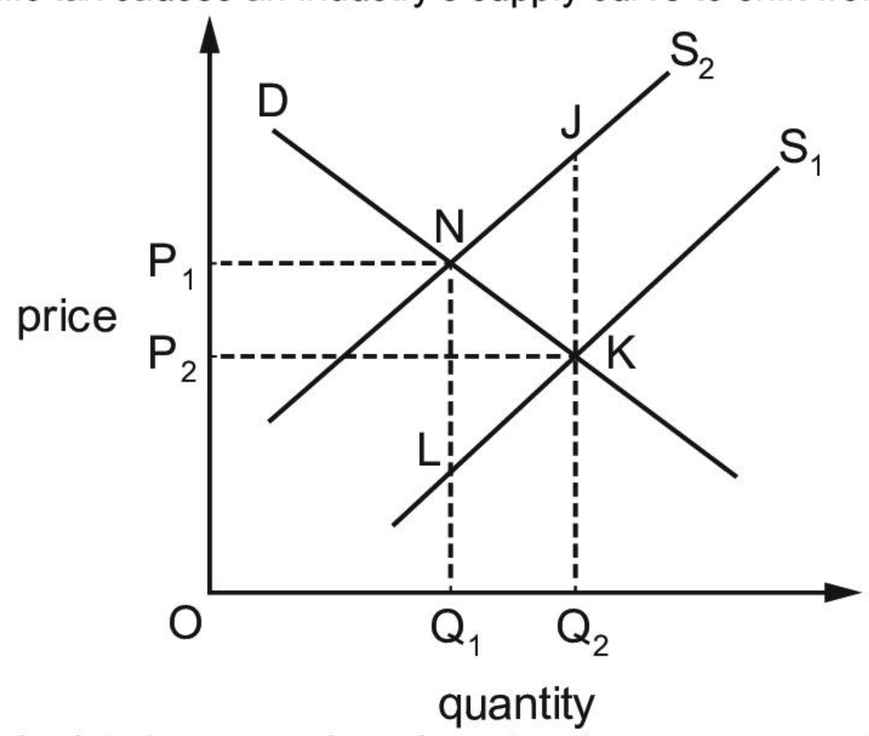


In the absence of externalities, which area in the diagram measures the net loss in economic welfare if the government restricts the level of output to OQ?

A u + v **B** v + w **C** x **D** v + w + x

4. M/J 14/P32/Q15

In the diagram the imposition of a specific tax causes an industry's supply curve to shift from S_1 to S_2.



Which area measures the resulting deadweight loss to society given that there was no market failure initially?

A NLK **B** JKN **C** P_1NKP_2 **D** Q_1Q_2JN

5. O/N 13/P32/Q16

The firms in a perfectly competitive industry combine to form a monopoly. What would prevent a deadweight welfare loss resulting?

A The government imposes an indirect tax on the monopolist's product.

B The government requires the monopolist to charge a price equal to average cost.

C The monopolist adopts marginal cost pricing.

D The monopolist charges the same price to all consumers.

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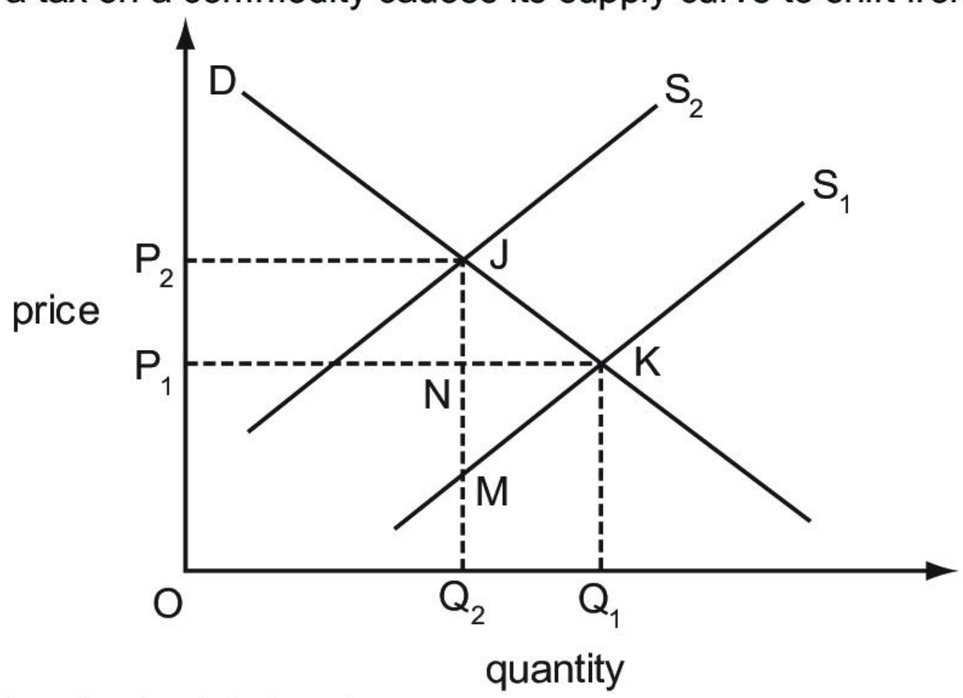
6. M/J 12/P32/Q14

In the diagram the imposition of a tax on a commodity causes its supply curve to shift from S_1 to S_2.

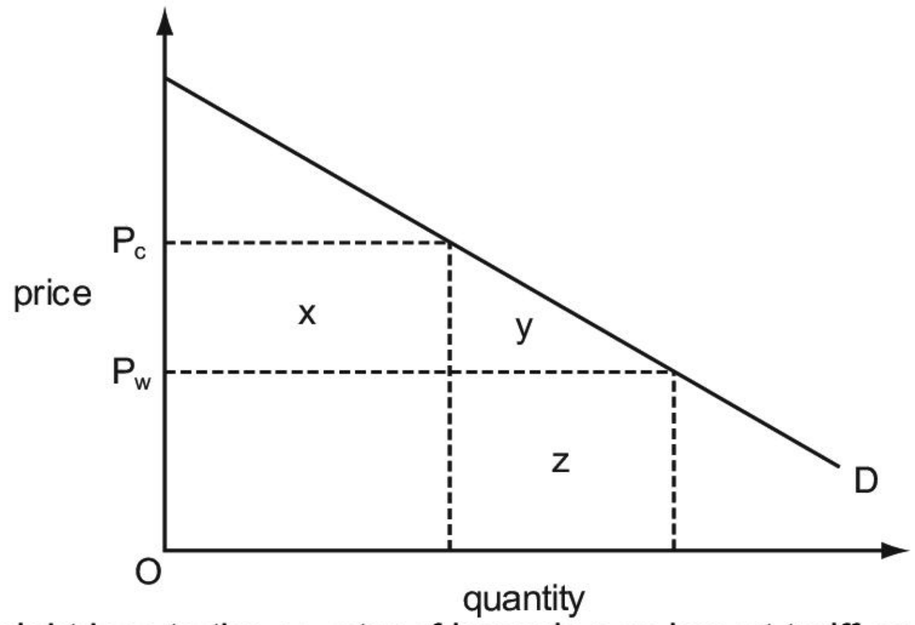


Which area measures the resulting deadweight loss?

A P_1P_2JK **B** JKQ_1Q_2 **C** JKM **D** JKN

7. M/J 12/P33/Q14

In the diagram, D is a country's demand curve for an imported good. The world price of the good is OP_W.



Which area measures the deadweight loss to the country of imposing an import tariff equal to P_W P_C on the good?

A x **B** y **C** z **D** x + y

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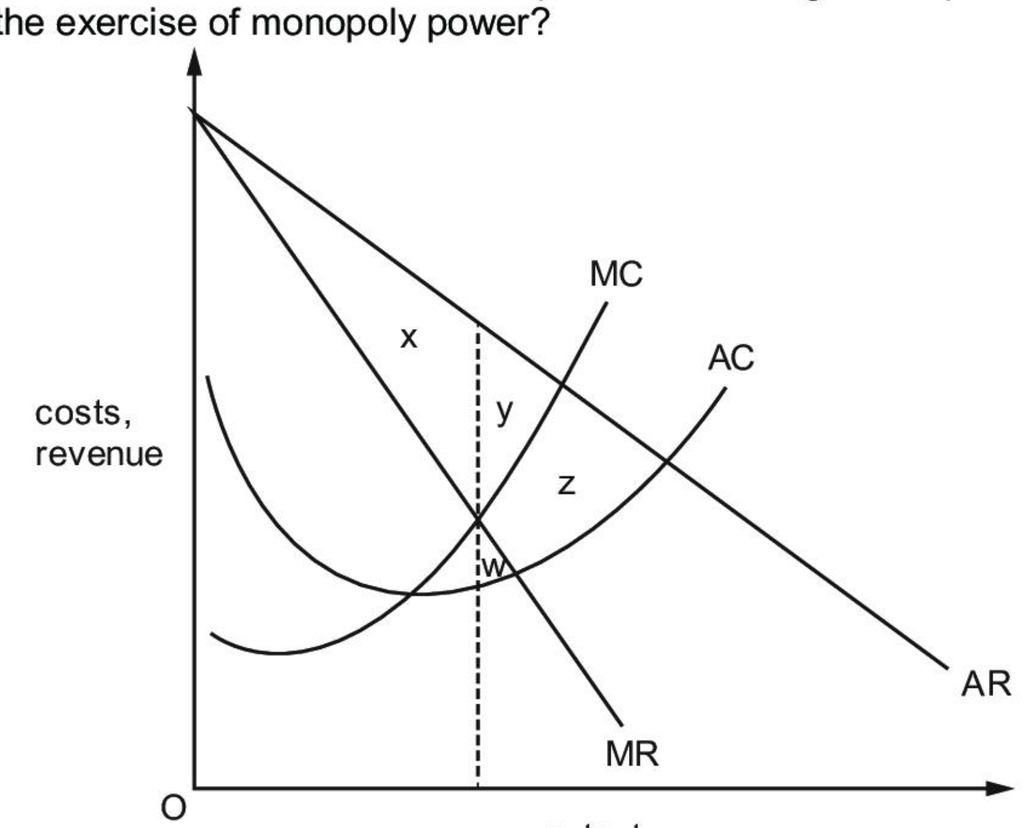
8. M/J 14/P31/Q14, M/J 14/P31/Q13, O/N 06/P3/Q15, M/J 02

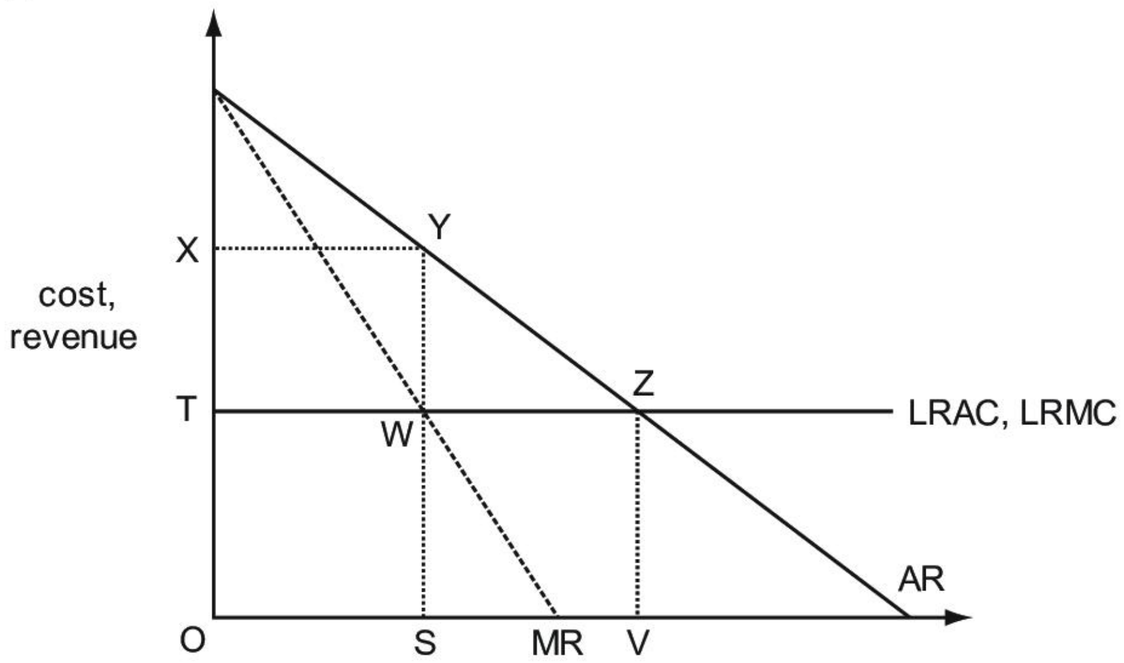
The diagram shows the cost and revenue curves of a profit-maximising monopolist. Which area measures the deadweight loss arising from the exercise of monopoly power?



A x + y **B** y **C** y + z **D** w + y + z

9. M/J 04/P3/Q11

The diagram shows an industry producing under conditions of constant average costs. Under perfect competition, the industry produces output OV.



Which area measures the increase in the industry's profits if it were to become a monopoly?

A XYSO **B** XYWT **C** XYZT **D** YZW

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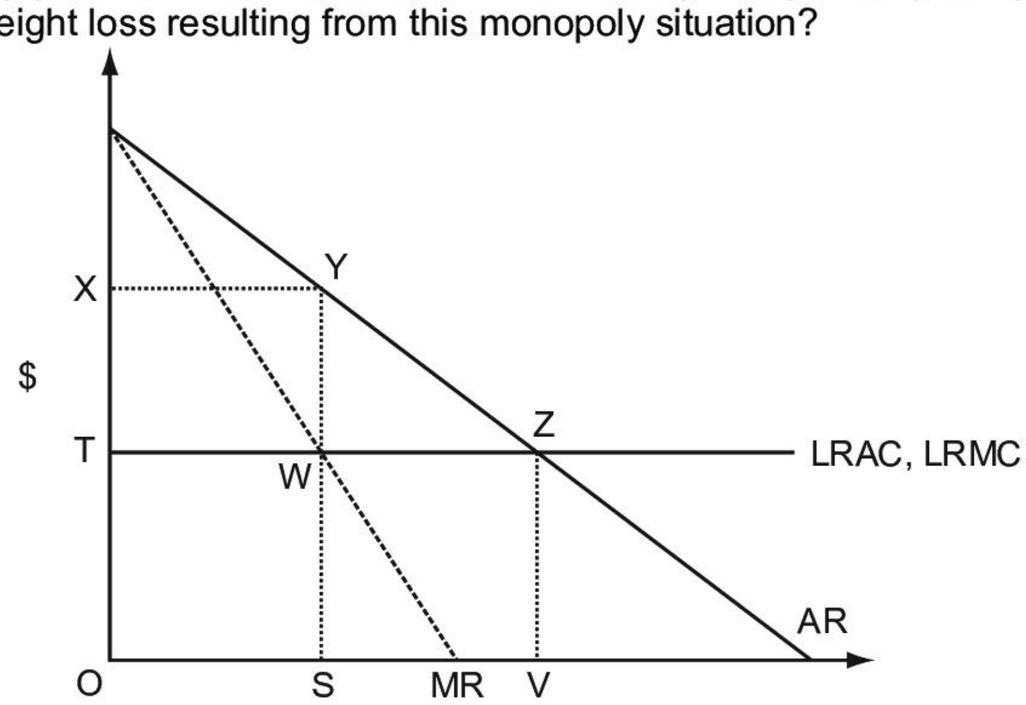
10. O/N 08,O/N 09/P32/Q11

The diagram shows the cost and revenue curves of a profit-maximising monopolist. The monopolist's average cost curve is identical to the long-run supply curve which would exist if the industry was perfectly competitive.
Which area shows the deadweight loss resulting from this monopoly situation?



A WXYZ **B** WXVZ **C** XVY **D** XVUT

11. Dec. 81,O/N 92,M/J 95/P32

A single monopolist enjoying internal economies of scale is replaced by a large number of producers operating under perfect competition. What will be the effect on the industry's price and output?

	Price	Output
A	Fall	Rise
B	Rise	Fall
C	Rise	Uncertain
D	Uncertain	Uncertain

12. M/J 97/P32/Q14

A large number of small firms in a competitive industry are taken over and combined to form a single monopoly supplier. Given the existence of internal economies of scale, what effect will this have on price and output?

	price	output
A	fall	uncertain
B	rise	increase
C	uncertain	decrease
D	uncertain	uncertain

13. M/J 03,M/J 08/P32/Q14

A perfectly competitive industry becomes a profit maximising monopoly. The marginal cost curve of the monopolist is identical to the supply curve of the perfectly competitive industry.
How will output and price be affected?

	Output	Price
A	increases	increases
B	increases	decreases
C	decreases	decreases
D	decreases	increases

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14. M/J 07/P32/Q15

A perfectly competitive industry becomes a monopoly.
What would prevent a deadweight welfare loss resulting?

A The government converts it to a profit-maximising nationalised industry.
B The government places an indirect tax on the monopolist's product.
C The monopolist uses marginal cost pricing.
D The monopolist charges the same price to all consumers.

15. M/J 10/P32/Q12

A competitive market becomes a monopoly. What is likely to happen?

A Consumer surplus will be reduced by the amount of the deadweight loss.
B Producer surplus will be reduced by the amount of the deadweight loss.
C The loss in consumer surplus will be balanced by the increase in producer surplus.
D There will be a transfer of surplus from consumer to producer.

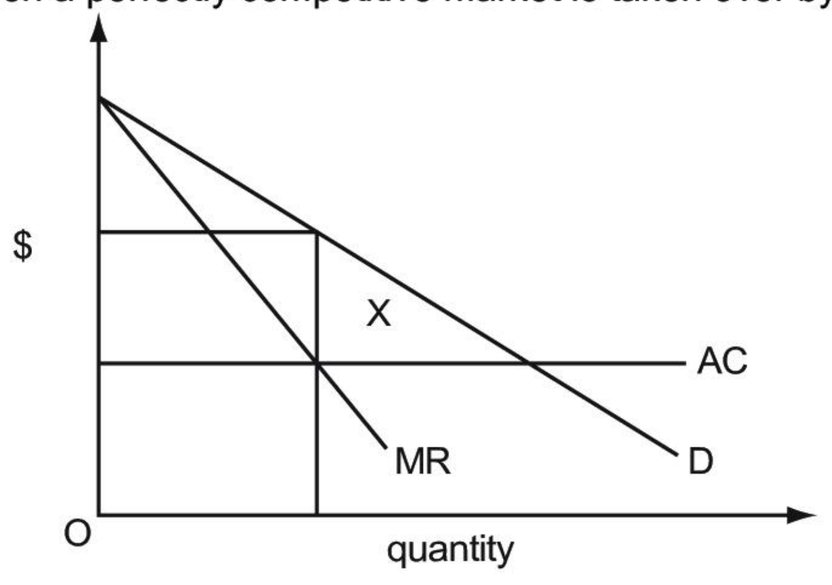
16. O/N 04/P32/Q1

A firm is operating in a perfectly competitive market.
What would ensure that it is both productively and allocatively efficient?

A It is in long-run equilibrium.
B It is maximising total revenue.
C It is producing where marginal revenue is equal to marginal cost.
D Long-run average costs are falling and sales are rising.

17. O/N 10/P32/Q12

The diagram shows the outcome when a perfectly competitive market is taken over by a monopoly.



What does area X represent?

A monopoly profit
B the reduction in consumer surplus
C the resulting deadweight loss
D transfer earnings

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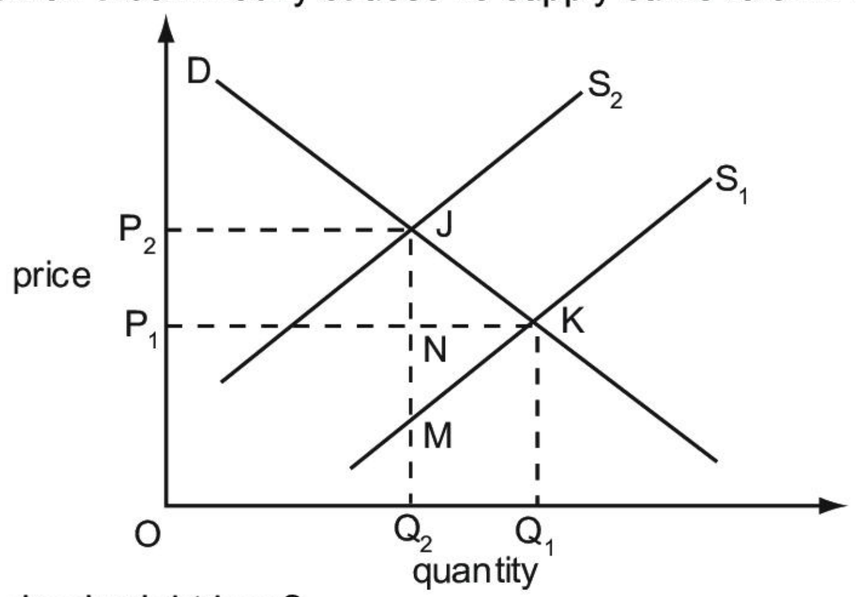
18. M/J 03, M/J 08/P32/Q15

In the diagram the imposition of a tax on a commodity causes its supply curve to shift from S_1 to S_2.



Which area measures the resulting deadweight loss?

A P_1P_2JK **B** JKQ_1Q_2 **C** JKM **D** JKN

19. M/J 05, M/J 08/P32/Q1

What will happen if a firm is subsidised by an amount equivalent to the external benefits that it confers on the rest of society?

A Resource allocation will be improved.

B The firm will produce less.

C There will be a mis-allocation of resources.

D There will be no effect upon production.

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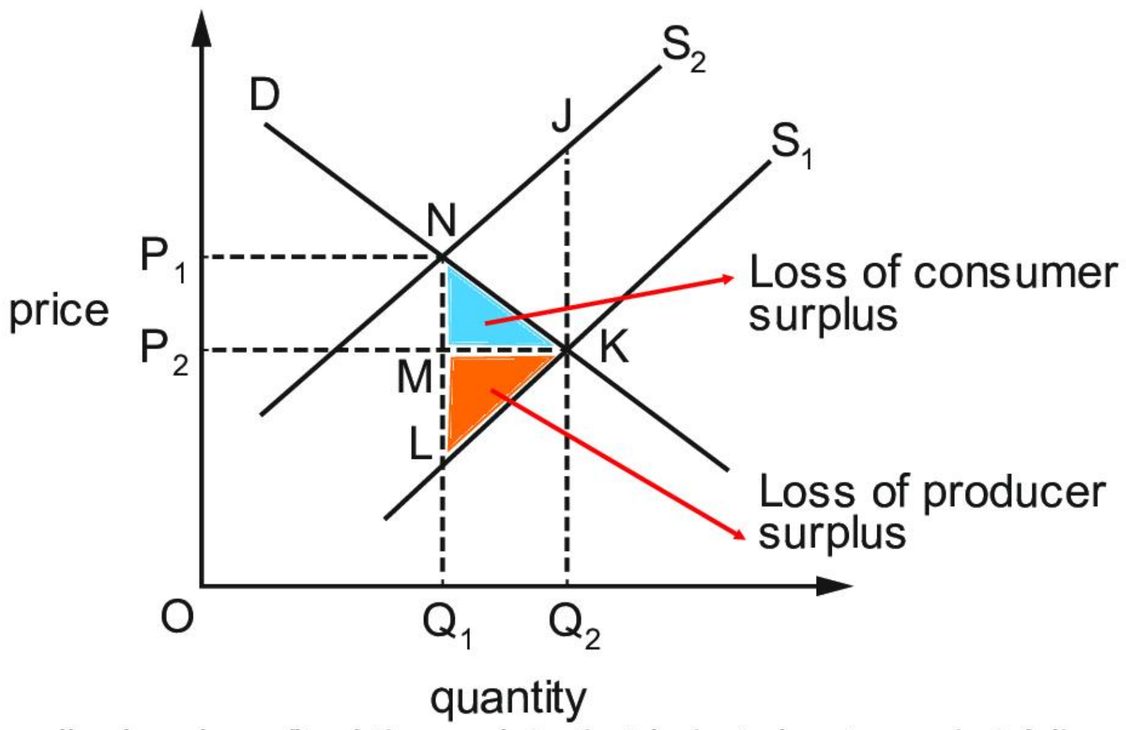
Answers Section

1. C
Area 'v' will be added to consumer surplus and area 'w' will be added to producer surplus. Hence, net economic gain will be v + w.

2. A
Area 'y' will be added to consumer surplus and area 'w' will be added to producer surplus. Hence, net economic gain will be y + w.

3. B
Area 'v' will be lost from consumer surplus and area 'w' will be lost from producer surplus. Hence, net economic loss will be v + w.

4. A



Deadweight loss can be described as benefit of the society that is lost due to market failure. As the graph shows area NMK was part of consumer surplus (area under the demand curve and above the market price) and area MLK was part of producer surplus (area above the supply curve but below the market price). So area NLK is the deadweight loss and option A is the answer, because that area represents the consumer and producer surpluses that are lost due to the imposition of the tax.

5. C
Deadweight loss is costs incurred by society due inefficiencies. Imposing an indirect tax adversely affects supply of a product. It will cause the monopolist to reduce output and charge a higher price which will increase deadweight loss. Charging a price equal to average cost will result in normal profits; the new price and output could still cause deadweight loss. Marginal cost pricing means price should always be equal to marginal cost, so the firm will produce where MC=P. This exactly where a competitive market produces as well.

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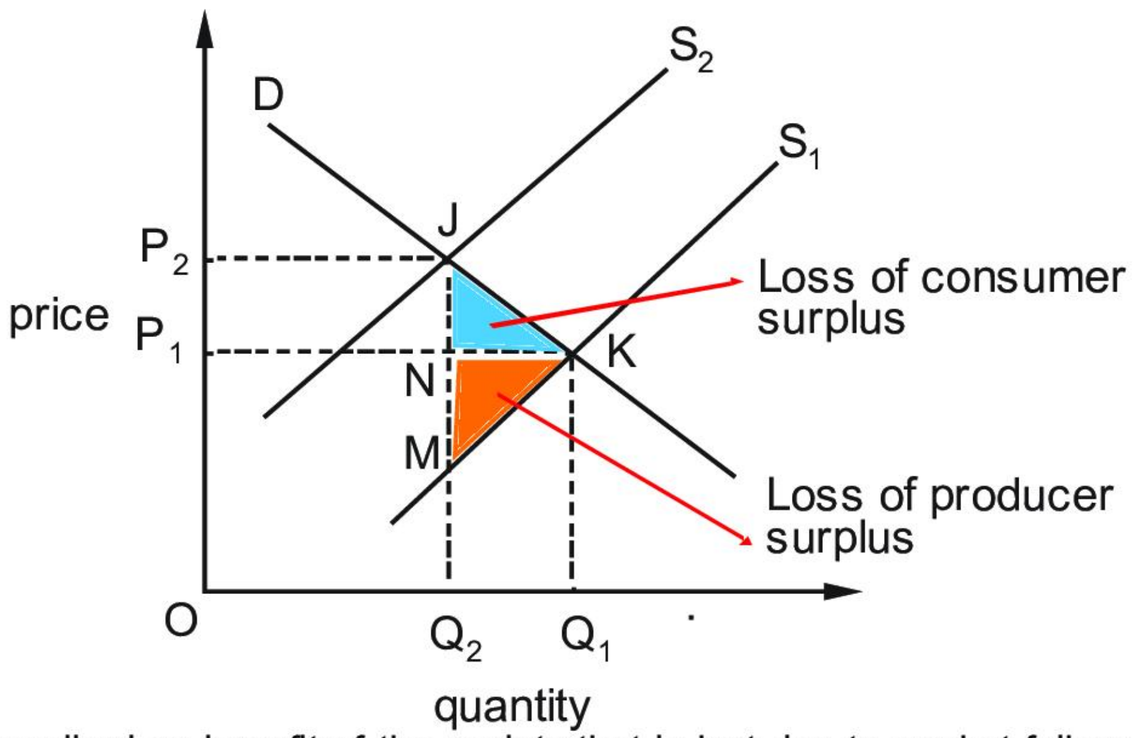
6. C



Deadweight loss can be described as benefit of the society that is lost due to market failure. As the graph shows area JNK was part of consumer surplus (area under the demand curve and above the market price) and area MNK was part of producer surplus (area above the supply curve but below the market price). So area JMK is the deadweight loss and option C is the answer, because that area represents the consumer and producer surpluses that are lost due to the imposition of the tax.

7. B

Deadweight loss can be described as benefit of the society that is lost due to market failure. As the graph shows area 'y' was part of consumer surplus (area under the demand curve and above the market price) when price was OP_W but lost after imposition of tariff when price rises to OP_c. So area 'y' is the deadweight loss and option B is the answer.

8. B

A monopoly will produce less than the socially optimum output. It can be observed from the above figure that the monopolist's output will be where MC=MR. Perfectly competitive industry produces at a point where D=S (as D=AR while S= åMC) or AR=MC. This means that a monopolist charges consumers a higher price and produces a lower output hence create a deadweight loss of area 'y'.

9. B

Under perfect competition, the firm produces output OV where market demand (D = AR) is equal to market supply (LRMC = S). When industry becomes monopoly, the firm maximizes its profits by producing where MR = MC. This is shown by point W. At this stage, the new price is OX and quantity OS. The profit is per unit is difference between AR and LRAC which is XT whereas total profit is the area XYWT . Therefore the total increase in profit is XYWT because the firm was earning normal profit before.

10. C

When the market is perfectly competitive, the price is OZ and quantity OU. Consumer surplus is between demand curve and line ZV. When monopoly power is exercised consumer surplus reduces to area between demand and WX. The resulting deadweight loss is XVY.

11. D

The replacement of industry from one which is monopoly to a perfectly competitive industry can bear two different consequences. Firstly if demand and cost conditions remain same, then a shift from monopoly to PC will decrease the price and increase the quantity. The second case is if the industry is natural monopoly where market size is suitable for one efficient firm. In this case, the monopoly will be able to lower its average cost far below than a competitive firm in long run.

Therefore unless the circumstances are specified that either it is natural monopoly or if the demand and cost conditions are same, until then the price and output is uncertain.

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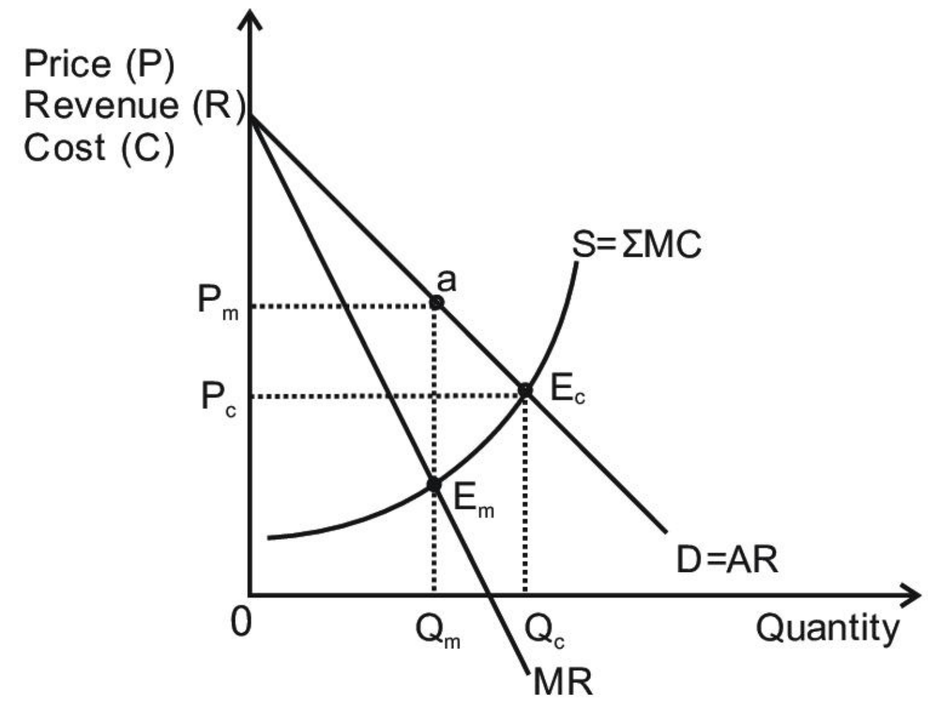
12. D

The replacement of industry from one which is monopoly to a perfectly competitive industry can bear two different consequences. Firstly if demand and cost conditions remain same, then a shift from monopoly to PC will decrease the price and increase the quantity. The second case is if the industry is natural monopoly where market size is suitable for one efficient firm. In this case, the monopoly will be able to lower its average cost far below than a competitive firm in long run.

Therefore unless the circumstances are specified that either it is natural monopoly or if the demand and cost conditions are same, until then the price and output is uncertain.

13. D

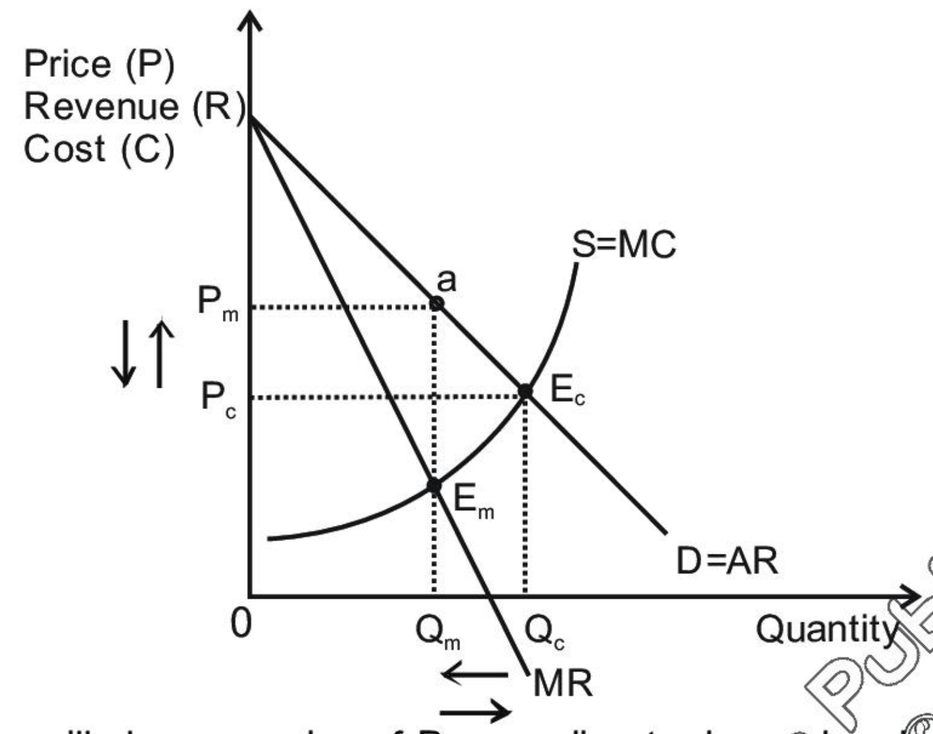
This can be explained by the diagram below.



As observed through diagram the price and quantity for perfectly competitive industry is Pc and Q_c respectively. When industry is monopolized the price increases to P_m with the quantity decreasing to Q_m.

14. C

The deadweight loss can be explained through diagram below.



The perfectly competitive industry will charge a price of P_c according to demand and supply. As soon as it becomes a monopoly, the firm will charge price of P_m and the resulting deadweight loss will be the area aE_mE_c as shown in diagram. In order to eliminate the deadweight loss, the firm needs to decrease its price. By using MC pricing, the price will drop back to where it was before, i.e., P_c and the deadweight loss will be eliminated.

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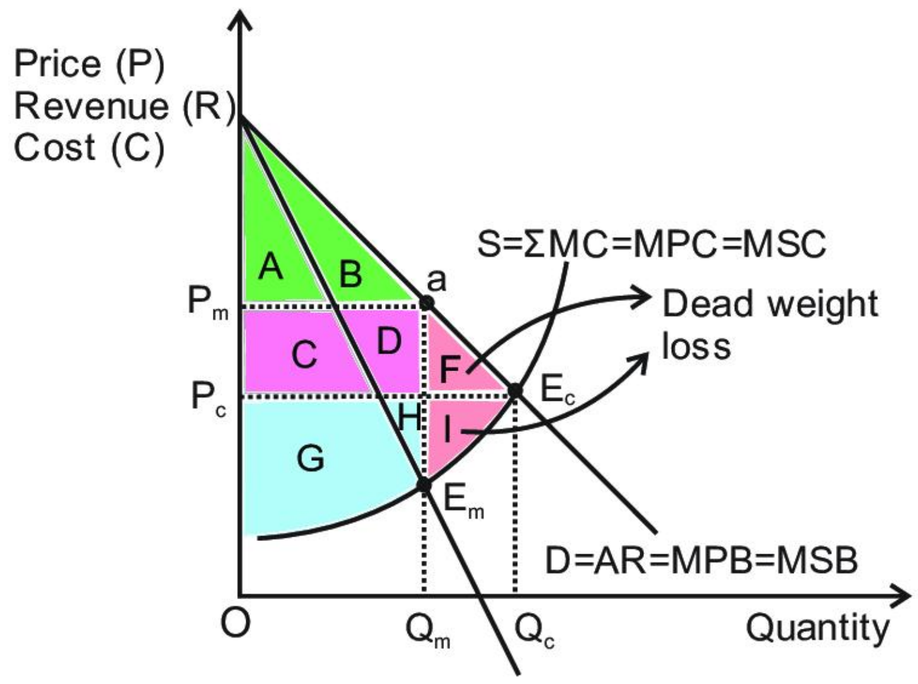
15. D

This effect can be shown in diagram.

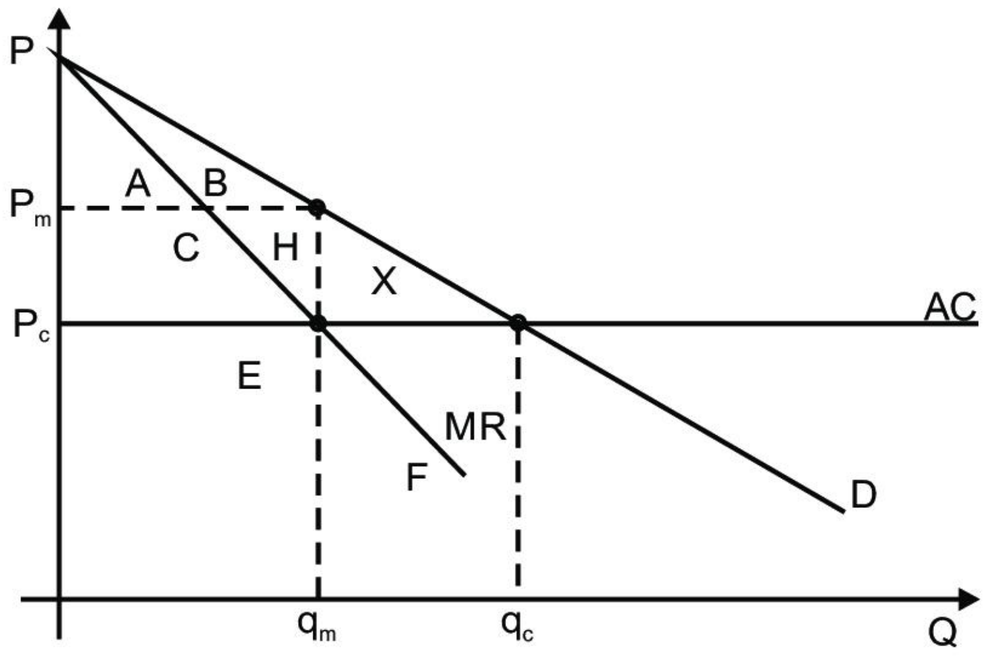


In perfect competition consumer surplus in area ABCDF and producer surplus will be GHI. After monopoly, consumer surplus reduces to AB and producer surplus is CDHG. The consumer surplus of CD is converted to producer surplus whereas FI be deadweight loss.

16. A

Productive efficiency is achieved where MC=AC where as allocative efficiency is ensured where P=MC. Hence, economic efficiency is achieved where P=MC=AC. In long run, in perfectly competition firms are earning normal profits and P=MC=AC, hence it is both productively and allocatively efficient.

17. C



When a market is perfectly competitive, it produces where demand equals supply and hence price is P_c and quantity q_c. When monopoly takes over, price increase to P_m with a decrease in quantity to q_m. Initially consumers surplus was area A,B,C,H and X. After monopoly consumer surplus reduced to area A & B. Area C & H is converted to producer surplus. The remaining area of X was deadweight loss.

18. C

According to the diagram JKN is loss in consumer surplus while MNK is loss in producer surplus. Therefore, the combined area JKM is total deadweight loss.

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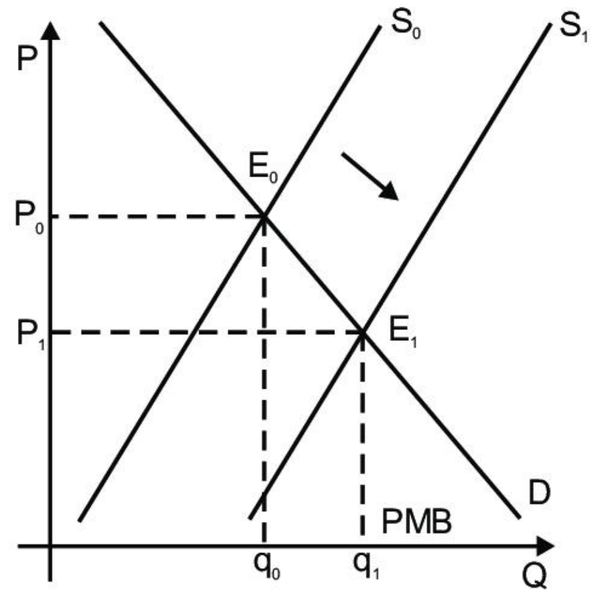
19. A

If a firm is subsidized equal to external benefits, firm will produce at socially optimum level where MSC=MSB



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10.5 Government policies

1. M/J 16/P32/Q18, O/N 13/P31/Q16

A government regulates the price charged by a monopolist.
In which circumstance will such intervention improve economic efficiency?

A The government sets the price where average revenue equals marginal cost.

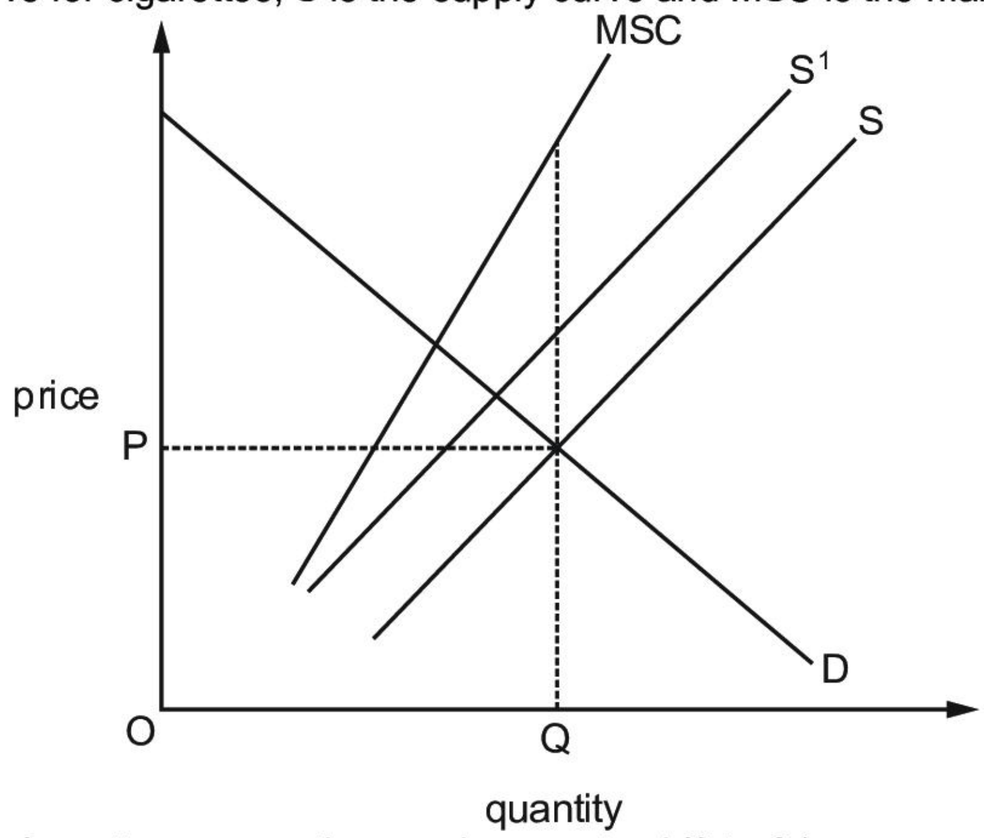
B The government sets the price where marginal cost is below average cost.

C The intervention results in an increase in producer surplus.

D The intervention results in predatory pricing.

2. M/J 15/P31/Q14

In the diagram, D is the demand curve for cigarettes, S is the supply curve and MSC is the marginal social cost curve.



The introduction of a specific tax on cigarettes causes the supply curve to shift to S1.
What are likely to be the impacts of the tax on economic efficiency and the tax system?

	economic efficiency	tax system
A	improves	less regressive
B	improves	more regressive
C	worsens	less regressive
D	worsens	more regressive

3. M/J 15/P32/Q17

Which government policy would not be classified as regulation?

A bans on heroin and cocaine consumption

B compulsory wearing of seatbelts in cars and coaches

C licences for the extraction of water from lakes and rivers

D taxation of cigarettes and tobacco products

4. M/J 15/P33/Q15

Which trade-off do governments face when they embark upon the privatisation of a state monopoly?

A between allocative and productive efficiency

B between introducing competition and maximising revenue from the privatisation

C between productive and technical efficiency

D between pursuing short-run and long-run profit maximisation

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5. O/N 14/P31/Q15

Which policy change will make some individuals better off without making anyone worse off?

A allowing farmers to buy and sell milk quotas
B introducing a national minimum wage
C introducing free bus travel for those over 60
D removing restrictions on the opening hours of supermarkets

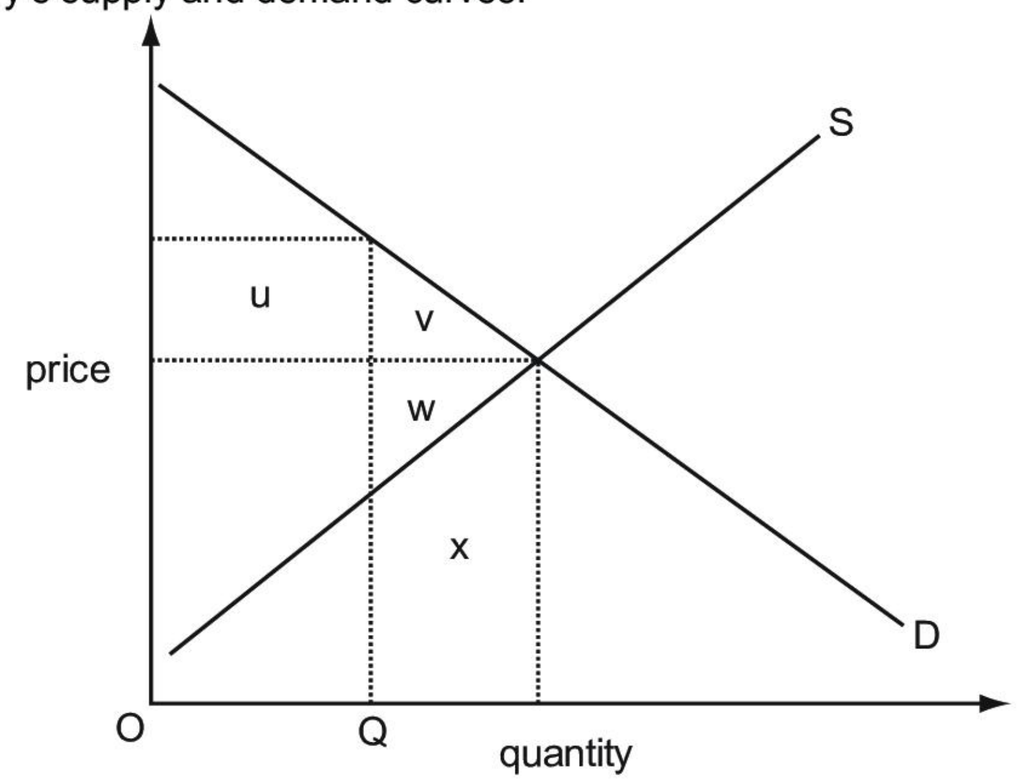
6. M/J 14/P32/Q14

Which is not a policy designed to correct market failure?

A competition policy
B free inoculation against infectious diseases
C minimum wage policy
D regulations to limit river pollution

7. M/J 13/P31/Q12

The diagram shows an industry's supply and demand curves.



The government initially restricts the quantity to OQ.
The restriction on the quantity is then removed.
In the absence of externalities, which area in the diagram measures the net gain in economic welfare?

A u **B** v **C** v + w **D** v + w +x

8. O/N 12/P32/Q1, M/J 16/P33/Q13, M/J 05,M/J 08/P32/Q1

What will happen if a firm is subsidised by an amount equal to the external benefits that it confers on the rest of society?

A There will be no effect upon production.
B The firm will produce less.
C There will be a mis-allocation of resources.
D Resource allocation will be improved.

9. O/N 12/P33/Q15

The government introduces a congestion charge on motorists who drive their vehicles within a designated urban zone.
What will be the impact on the overall economic welfare of those who continue to use their cars and on those who switch to travelling by bus?

	impact on those who continue to use their cars	impact on those who switch to buses
A	loss	uncertain
B	loss	loss
C	uncertain	loss
D	uncertain	uncertain

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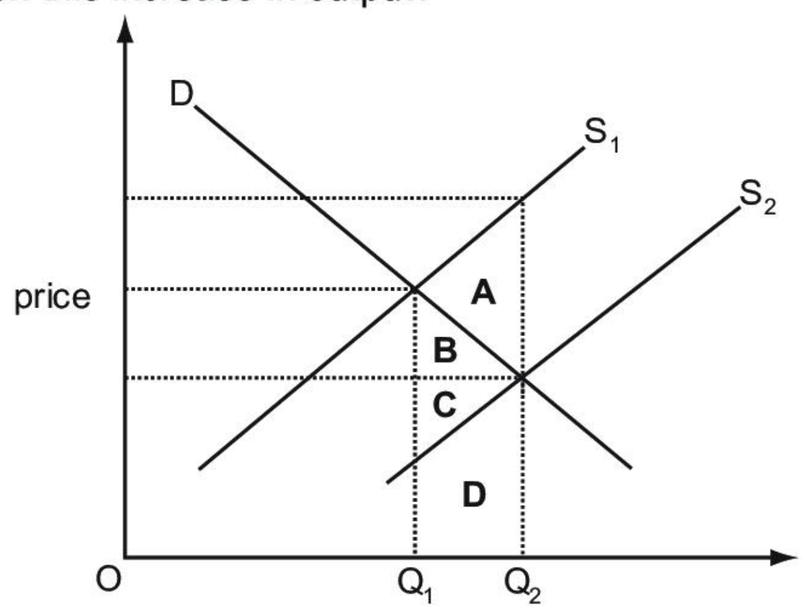
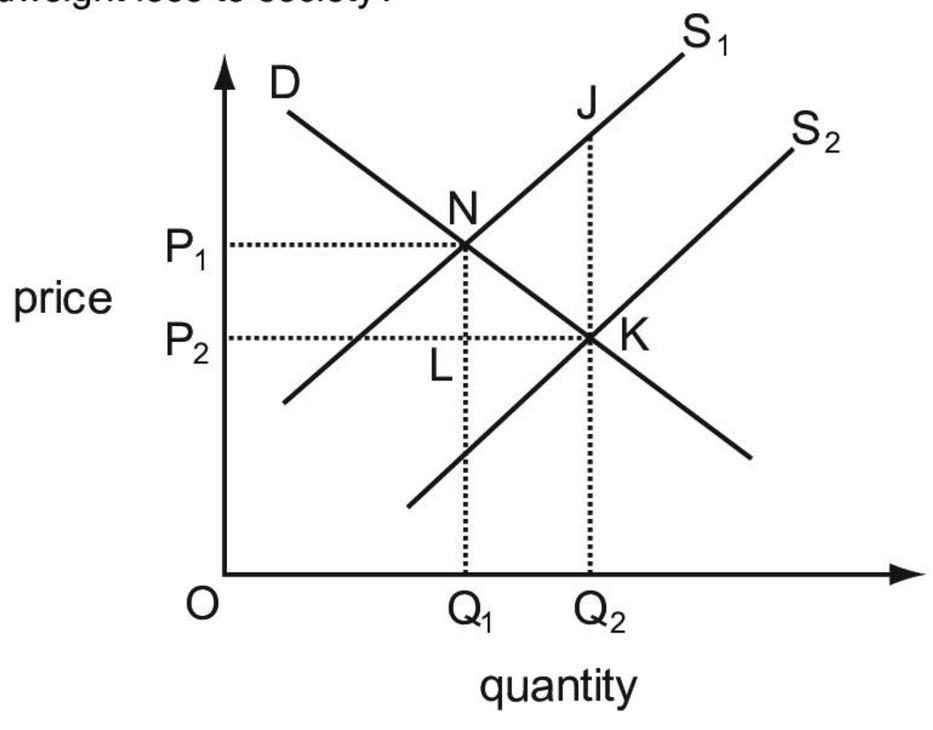
10. O/N 11/P32/Q15

The diagram shows the supply and demand curves of a commodity.
A government subsidy causes the supply curve to shift from S_1 to S_2.
Which area measures the difference between the cost to the economy of producing the resulting increase in output (Q_1 – Q_2) and the value consumers place on this increase in output?



11. M/J 09/P32/Q14

In the diagram the introduction of a government subsidy causes an industry's supply curve to shift from S_1 to S_2.Which area measures the resulting deadweight loss to society?



A P_1NKP_2 **B** JKN **C** NLK **D** Q_1Q_2JN

12. M/J 08/P3/Q15, M/J 12/P31/Q15

A government decides to privatise a state monopoly.
What should the government do to try to ensure that this will result in an improvement in efficiency?

A allocate vouchers to all citizens entitling them to a share in the ownership of the monopoly
B encourage competition
C impose a maximum profit margin
D privatise the monopoly as a going concern

13. O/N 07/P3/Q16

What should an industry regulator control if it wishes to provide an incentive for a privatised firm to improve its productive efficiency?

A dividends **B** output **C** prices **D** profits

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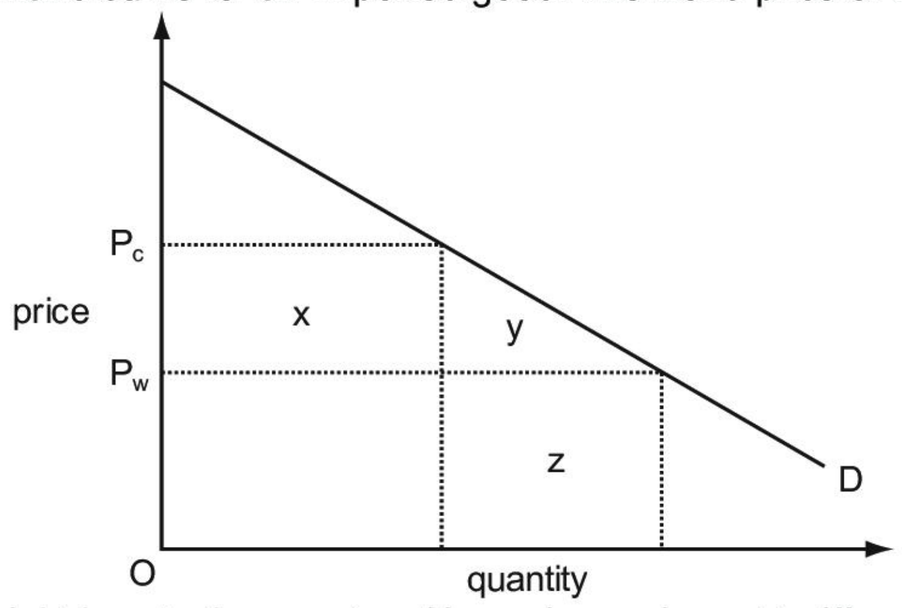
14. M/J 05/P3/Q15

In the diagram D is a country's demand curve for an imported good. The world price of the good is OPW.

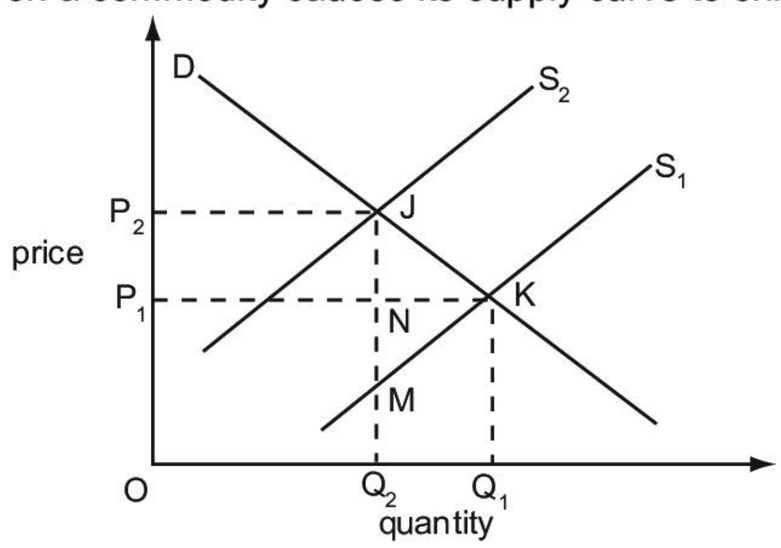


Which area measures the deadweight loss to the country of imposing an import tariff equal to PW PC on the good?

A x **B** y **C** x + y **D** y + z

15. M/J 03,M/J 08/P3/Q15

In the diagram the imposition of a tax on a commodity causes its supply curve to shift from S_1 to S_2.



Which area measures the resulting deadweight loss?

A P_1P_2JK **B** JKQ_1Q_2 **C** JKM **D** JKN

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Answers Section

1. A
Allocative efficiency is achieved if MC=P=AR. Therefore, if government regulates the price charged by a monopolist to improve economic efficiency, government should set the price where average revenue equals marginal cost.

2. B
Specific tax is fixed in amount per unit and therefore takes greater proportion of income of poor consumers and hence is regressive. Due to this specific tax, supply falls and get closer to MSC and D (MSB) equality. therefore there is an improvement in economic efficiency.

3. D
Government regulations include laws, ban or licencing but taxation is not the part of government regulations.

4. B
Privatisation will improve technical, productive and allocative efficiency therefore there will not be any trade-off among them. Government does not aim for profit maximisation therefore option D can not be correct. Through privatisation government aims for revenue and encourage competition but there may be a trade off between these two objective as privatisation may end up with private monopoly.

5. A

6. C
A monopolist will restrict output and charge higher prices to consumers. An imperfect market structure such as a monopolist is an example of market failure because monopolies cause deadweight loss. Encouraging competition in the market may help in decreasing prices and therefore reducing the deadweight loss, so this policy helps in correcting market failure.

Public goods have the characteristics of non-excludable and non-rival and therefore are not provided by the market. This is an example of market failure and so in this example the government is involved in the direct provision of inoculation so this policy also corrects a specific type of market failure.

Pollution cause by factories damage the environment and therefore affect third parties. The rise of negative externality in this example will result in suppliers producing more than that is required by the society. In order to correct this market failure the government has put in regulations to restrict output.

Only minimum wage policy is not enforced as a result of market failure but it is rather placed to achieve equity.

7. C
If the government restricts the quantity to OQ, there will be loss of consumer surplus area 'v' and producer surplus area 'w'. If this restriction is removed, net gain in economic welfare will be area v + w.

8. D
If a firm is subsidized equal to external benefits, firm will produce at socially optimum level where MSC=MSB and therefore resource allocation will be improved.

9. D
Those who continue to use the cars will pay higher price but will benefit from less traffic congestion and less travel time and fuel cost. Therefore impact on their economic welfare will be uncertain. Those who switch to buses will pay lower fare but lose the benefit of comfort of travel by their private cars. therefore impact on their economic welfare will also be uncertain.

10. A
Supply curve is also PMC (private marginal cost) curve for a firm.
Total cost of additional output = PMC x Q_1Q_2 = Area A+B+C+D
However, the area under the demand curve is what consumers value this increased output, since the demand curve shows the willingness of consumers and ability to pay for a set quantity. So that will be area B+C+D. Hence the difference therefore will be area A.

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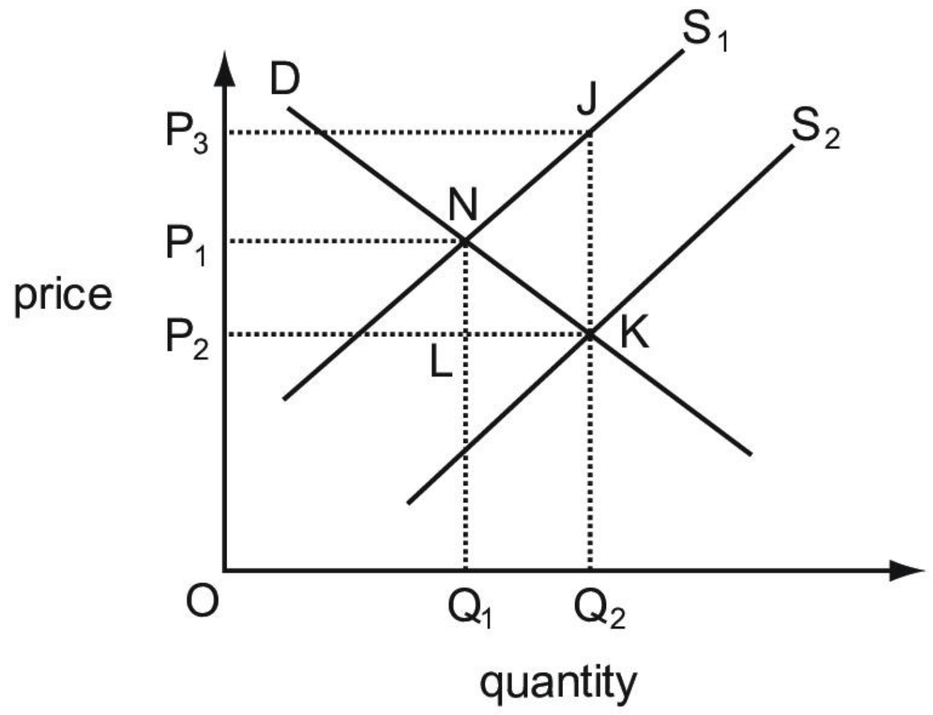
11. B



Total subsidy expenditure = P_3JKP_2
Part of Subsidy added to producer surplus = P_3JNP_1
Part of Subsidy added to consumer surplus = P_1NKP_2
Hence dead weight loss of subsidy = NJK

12. B
Encouraging competition will reduce the ability of monopoly to exploit and therefore improves the efficiency in the market.

13. C
Productive efficiency can be achieved by controlling prices which will in turn control outputs, dividend and profits.

14. B
By imposing tax of P_wP_c, Consumer surplus falls by x+y where as 'y' will be the deadweight loss, and 'x' will be collected in tax revenue.

15. C
According to the diagram JKN is loss in consumer surplus while MNK is loss in producer surplus. Therefore, the combined area JKM is total deadweight loss.

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10.6 Multiple topics of chapter 10

1. M/J 15/P32/Q1
What need not pose a potential threat to allocative efficiency in a market economy?

A externalities
B differentiated products
C monopolistic elements
D perfect knowledge

2. O/N 15/P33/Q15
What would be most likely to give rise to a conflict between efficiency and equity?

A an increase in government expenditure on health care
B an increase in interest rates
C an increase in subsidies to public transport in congested urban areas
D an increase in the highest rate of income tax

3. O/N 14/P32/Q17
A government introduces tax incentives which promote effort and enterprise. They also redistribute income from those who receive a higher marginal utility from money to those with a lower marginal utility from money.
What effect will these tax incentives have on efficiency and equity?

	efficiency	equity
A	increase	increase
B	increase	reduce
C	reduce	increase
D	reduce	reduce

4. O/N 98/P3, M/J 94,Dec. 8
A firm manufactures a homogeneous product at a number of different plants.
How should it allocate output between the different plant, in order to minimize its overall production costs?

A equate average costs at each plant.
B equate marginal costs at each plant.
C minimize capital costs at each plant.
D share production equally throughout the different plants.

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Answers Section

1. D

Externalities and monopolistic elements will clearly pose a potential threat to allocative efficiency. Product differentiation enables a firm to be price maker and therefore firm will be able to charge higher price and produce lower output as compared to perfect competition (only allocative efficient market) under objective of profit maximization.
Perfect knowledge only exists in perfect competition which is efficient market structure and therefore pose no potential threat to allocative efficiency in a market economy.

2. D

A higher rate of income tax will make more equitable distribution of income and therefore improve equity. However, a higher rate of income tax creates a disincentive to work and enterprise which may end up with under allocation of resources and worsening efficiency condition.

3. B

Since the tax incentives promote effort and enterprise, there will be an increase in the amount of factors of production employed, allowing the economy to produce closer to the PPC, so efficiency will increase; however, since they redistribute money from the poor (those who gain a higher marginal utility from money) to the rich (those who gain a lower marginal utility from money), there will be a reduction in equity.

4. B

This can be explained through an example. For example if a firm has two plants A and B. Let the MC for A is equal to $ 4000 and MC for B is equal to $ 3000. In order to minimize its overall production costs the firm needs cost minimizing distribution of output between two plants. For example the firm will select that output for A where its MC = $3500 and similarly set the output for B where its MC = $ 3500 .
In short cost minimizing point will be where $MC_A = MC_B$

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Unit 11 Labour market

11.1 Marginal revenue product (MRP)

1. M/J 16/P33/Q14
A firm is operating in a perfectly competitive market. Why does the marginal revenue product of a factor of production employed by the firm fall as more of the factor is employed?

A Its average revenue falls.
B Its marginal physical product falls.
C Its marginal revenue falls.
D The supply price of the factor rises.

2. M/J 16/P31/Q14
A firm faces a downward-sloping demand for its product. Assuming that labour is its only variable factor input, how does the firm derive its demand curve for labour?

A from the current price of output and the money wage rate of labour
B from the marginal factor cost of labour
C from the schedules of the marginal physical product of labour and of marginal revenue
D from the schedules of the marginal physical product of labour and the money wage rate

3. M/J 16/P32/Q14
A firm employs a worker who adds less to output than the previous worker employed.
What does this illustrate?

A decreasing marginal costs
B diseconomies of scale
C increasing returns to scale
D the law of diminishing returns

4. M/J 16/P32/Q16
For a firm in imperfect competition, the marginal revenue product of labour at any given level of employment is equal to

A marginal revenue divided by the number employed.
B marginal revenue divided by the wage rate.
C the marginal physical product of labour multiplied by marginal revenue.
D the marginal physical product of labour multiplied by the wage rate.

5. M/J 16/P33/Q16
What would cause a perfectly competitive firm's marginal revenue product of labour curve to shift to the right?

A a higher rate of sales tax
B a rise in the price of the final product
C an increase in labour supply
D an increase in wages

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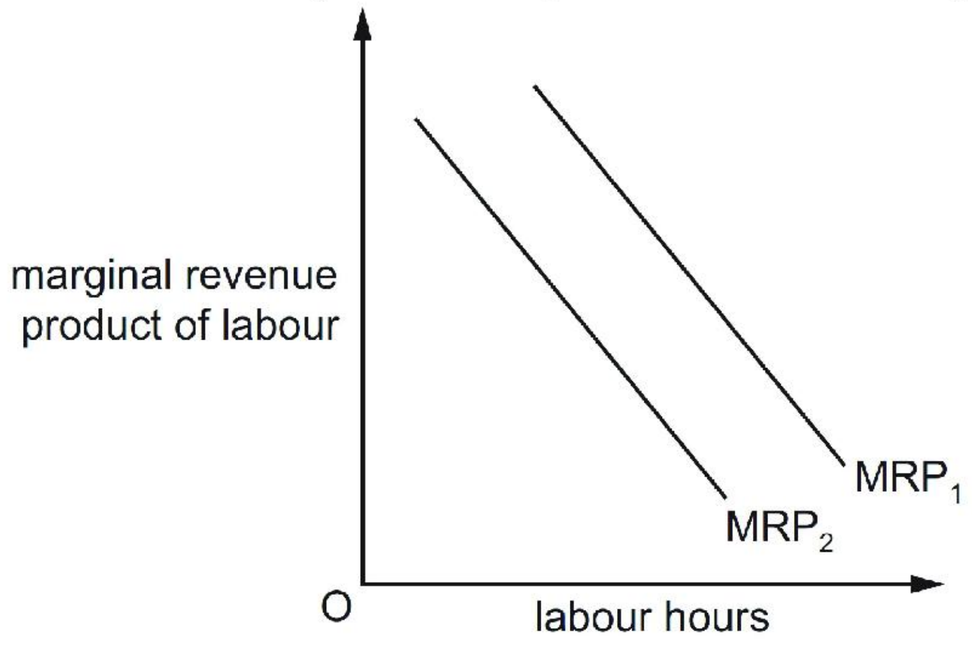
6. O/N 15/P31/Q4

The diagram shows a firm's initial marginal revenue product of labour curve (MRP_1).

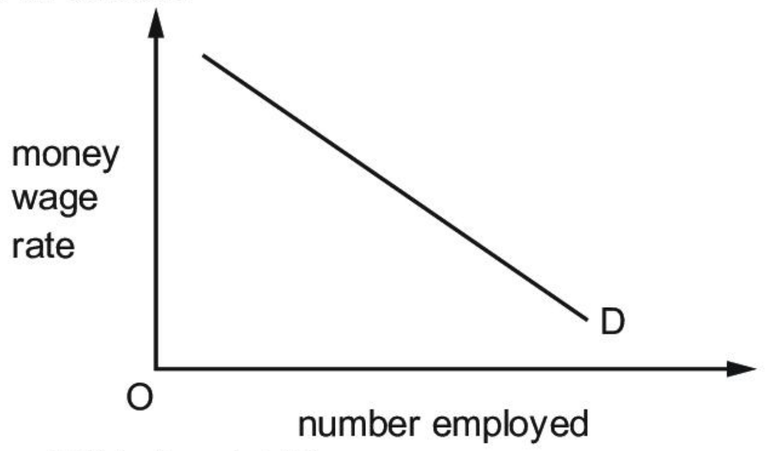


What could cause the curve to shift to MRP_2?

A an increase in labour productivity
B an increase in the wage rate
C a reduction in labour hours
D a reduction in the price of the firm 's product

7. M/J 14/P31/Q4

The diagram shows the demand curve for labour.



What could cause the demand curve to shift to the right?

A a decrease in labour productivity
B an increase in immigration
C an increase in the average price level
D a fall in the money wage rate

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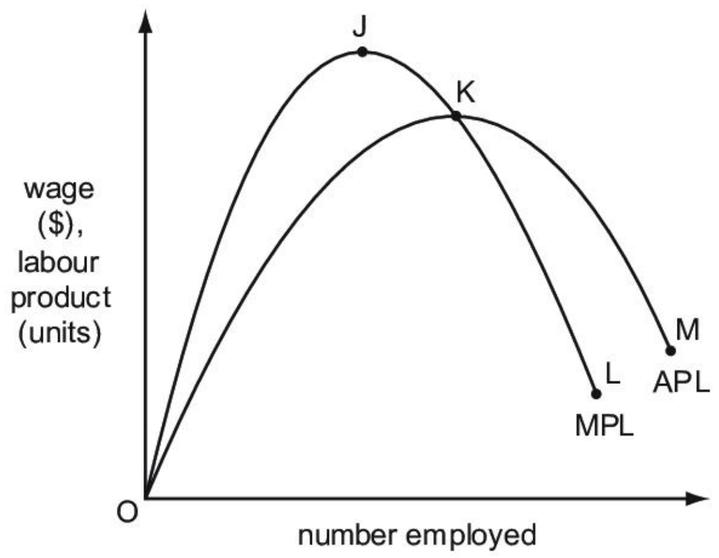
8. O/N 12/P33/Q4

The diagram shows a perfectly competitive firm's average product of labour and marginal product of labour curves.



The market price of the firm's product is $1.
Which segment of the curves represents the firm's demand for labour curve?

A OJ **B** JK **C** KL **D** KM

9. M/J 10/P32/Q3

What could cause the demand curve for labour to shift to the left?

A a decrease in immigration
B a decrease in labour productivity
C a fall in real wages
D a rise in the money wage rate

10. M/J 07/P3/Q5

For a firm in imperfect competition, the marginal revenue product of labour at any given level of employment is equal to

A marginal revenue divided by the number employed.
B marginal revenue divided by the wage rate.
C the marginal physical product of labour multiplied by marginal revenue.
D the marginal physical product of labour multiplied by the wage rate.

11. M/J 06/P3/Q3

'The addition to revenue which results from employing one additional unit of a factor of production, the quantities of all other factors of production remaining constant'.
What does this define?

A marginal factor cost
B marginal revenue
C marginal revenue product
D the law of diminishing returns

12. O/N 04/P3/Q6

What will cause the demand curve for labour to shift to the right?

A a fall in the money wage rate
B a rise in real wages
C an increase in immigration
D an increase in labour productivity

13. M/J 04/P3/Q3

A firm is operating in an imperfectly competitive market.
Why does the marginal revenue product of a factor of production employed by the firm fall as more of the factor is employed?

A Its marginal physical product alone falls.
B Its marginal revenue alone falls.
C Its marginal physical product and its marginal revenue both fall.
D The supply price of the factor rises.

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14. O/N 12/P31/Q5, O/N 09/P32/Q6, O/N 05, M/J 02

What could cause a perfectly competitive firm's marginal revenue product of labour curve to shift to the right?

A an increase in wages

B a higher rate of sales tax

C an increase in labour supply

D a rise in the price of the final product

15. M/J 97/P3

Labour is the only variable factor of a profit-maximising firm which is a price taker in the labour market.
From what is the firm's demand curve for labour derived?

A its marginal factor cost curve

B its marginal revenue curve

C its marginal revenue product of labour curve

D its short-run marginal cost curve

16. M/J 94,M/J 00/P3

The following schedules relate to a firm.

Production schedule

Number of workers employed	1	2	3
Total output (units)	20	35	45

Demand schedule

Price (£)	10	9	8
Quantity demand (units)	20	35	45

What is the marginal revenue product from the employment of the third worker?

A £45 **B** £65 **C** £115 **D** £360

17. M/J 94/P3

Other things being equal, which of the following will cause the demand curve for labour to shift to the right?

A a fall in the memory wage rate

B a rise in real wages

C an increase in immigration

D an increase in labour productivity

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Answers Section

1. B
In perfect competitive market, MR is constant therefore only reason for MRP to be downward sloping is falling MPL due to law of diminishing returns.

2. C
As
Demand for labour = MRP = MR x MPL
Therefore, C is the correct option.

3. D
According to law of diminshing returns, with the increase in labour with some fixed factor, marginal product of additional worker is lesser than previous worker due to exhaustion of fixed factor.

4. C
By definition
MRP = MR x MPP

5. B
Demand for labour (MRP) can only shift if either there is a change in price of the product (MR) or change in productivity of labour (MPL). In this case an increase in the price of the firm 's product will shift it to the right.

6. D
Demand for labour (MRP) can only shift if either there is a change in price of the product (MR) or change in productivity of labour (MPL). In this case a reduction in the price of the firm 's product will shift it leftward.

7. C
Demand for labour can only shift if either there is a change in price of the product or change in productivity of labour. In this case a decrease in labour productivity will shift the curve left.

8. C
As MRP curve is the demand curve for labour and
MRP = MR x MPL
In case of perfectly competition MR = P therefore MRP = P x MPL
In this case P= $ 1
Hence MRP = MPL

9. C
Among all options, an decrease in labour productivity will decrease marginal product which in turn will decrease the marginal revenue product. Hence the demand curve will shift to left.

10. C
As per definition, MRP is the product of marginal revenue and marginal physical product.

11. C
As per definition, marginal revenue product is the contribution to revenue of a firm by additional unit of factor of production.

12. D
Among all options, an increase in labour productivity will increase marginal product which in turn will increase the marginal revenue product. Hence the demand curve will shift to right. Change in wage rate will only cause a movement along the curve.

13. C
In Imperfect markets, marginal revenue is downward sloping curve due to price maker behaviour of the firm. MPP slopes downward due to law of diminishing returns.
Marginal revenue product (MRP) is the product of MR and MPP therefore MRP slopes downward because marginal physical product and its marginal revenue both fall.

14. D
Change in wages is an endogenous factor and creates a movement along the same curve. An increase in price of product will increase the marginal revenue which will in turn raise the marginal revenue product.

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15. C

The demand curve of labour is derived from MRP theory. The demand curve is MRP (Marginal revenue product) which is product of marginal revenue and marginal product.

16. A

MRP can either be calculated a product of MR and MPP or calculating the rate of change in total revenue product to change in labour, i.e.,

$$MRP = \frac{\Delta TRP}{\Delta L} = \frac{TRP_2 - TRP_1}{L_2 - L_1}$$

Where $TRP = P \times TP = P \times Q$

According to statement (at 3rd worker) $TRP_3 = 8 \times 45 = 360$.

At 2nd worker $TRP_2 = 9 \times 35 = 315$

Therefore

$$MRP = \frac{360 - 315}{3 - 2} = 45$$

17. D

Among all options, an increase in labour productivity will increase marginal product which in turn will increase the marginal revenue product. Hence the demand curve will shift to the right. Wage rate is an endogeneous factor for demand for labour and therefore creates a movement along the same curve.

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11.2 Individual supply of labour

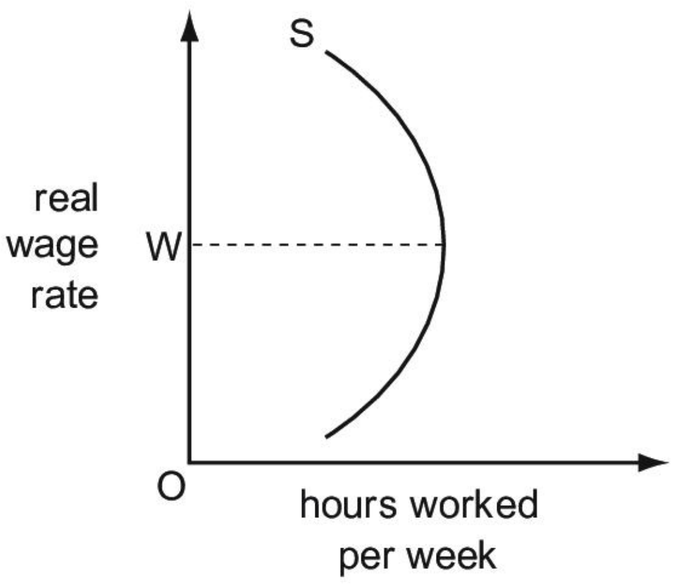
1. O/N 15/P31/Q5

A worker decides to work fewer hours when there is a rise in her real wage.
How is this explained by income and substitution effects?

	income effect	substitution effect	balance of effects
A	negative	positive	income effect outweighs substitution effect
B	negative	positive	substitution effect outweighs income effect
C	positive	negative	substitution effect outweighs income effect
D	positive	positive	income effect outweighs substitution effect

2. O/N 12/P32/Q5

The diagram shows a backward sloping supply curve of labour.



What is correct about the substitution effect and the income effect when the real wage rises above OW?

	substitution effect	income effect
A	negative	negative
B	negative	positive
C	positive	negative
D	positive	positive

3. M/J 12/P33/Q6

A worker responds to an increase in his hourly wage rate by reducing the number of hours he works per week.
What would explain this?

A The income effect of the wage rate increase outweighs the substitution effect.

B The substitution effect of the wage rate increase outweighs the income effect.

C The worker's supply of labour is wage elastic.

D The worker's supply of labour is wage inelastic.

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Answers Section

1. A

The substitution effect is basically an increase in the wage rate causing the opportunity cost of leisure to go up, so the worker should work more. The income effect on the other hand states that, as the wage rate goes up, the individual can earn more by working less, so the individual should spend more time on leisure. The two forces work in opposite directions, and what can be observed in a labour supply curve is the net effect. Substitution effect is positive since it is trying to increase working hours and the income effect is negative since it causes workers to work less. If income effect outweighs the substitution effect, A worker decides to work fewer hours when there is a rise in her real wage. So option A is correct.

2. C

The substitution effect is basically an increase in the wage rate causing the opportunity cost of leisure to go up, so the worker should work more. The income effect on the other hand states that, as the wage rate goes up, the individual can earn more by working less, so the individual should spend more time on leisure. The two forces work in opposite directions, and what can be observed in a labour supply curve is the net effect. So above wage OW, the substitution effect is positive since it is trying to increase working hours and the income effect is negative since it causes workers to work less. So option C is correct.

3. A

The substitution effect is basically an increase in the wage rate causing the opportunity cost of leisure to go up, so the worker should work more. The income effect on the other hand states that, as the wage rate goes up, the individual can earn more by working less, so the individual should spend more time on leisure. The two forces work in opposite directions, and what can be observed in a labour supply curve is the net effect. Substitution effect is positive since it is trying to increase working hours and the income effect is negative since it causes workers to work less. If income effect outweighs the substitution effect, A worker decides to work fewer hours when there is a rise in her real wage. So option A is correct.

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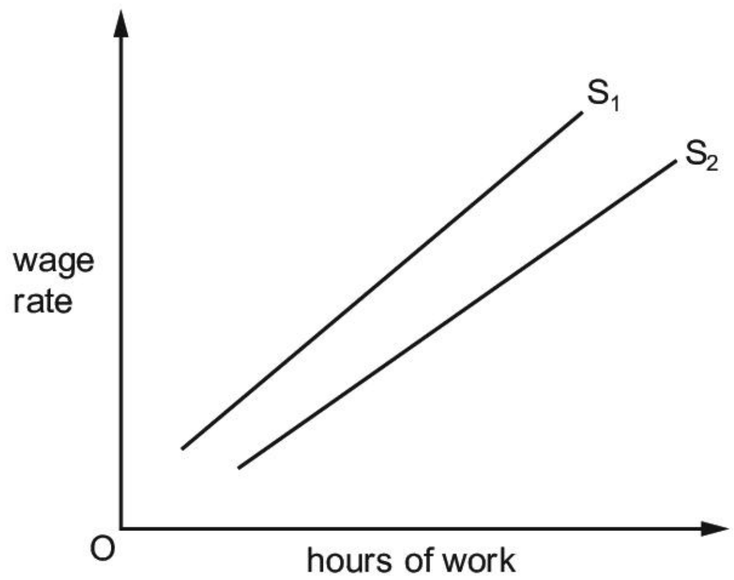
11.3 Firm and market supply of labour

1. M/J 14/P32/Q4

In the diagram S_1 is an individual worker's supply of labour curve.



What could cause the curve to shift from S_1 to S_2?

A a decrease in the hourly wage rate
B a decrease in work satisfaction
C a decrease in the opportunity cost of leisure
D a decreased preference for leisure

2. O/N 11/P31/Q5, O/N 11/P33/Q4

What will cause the supply curve of labour in a particular industry to shift to the left?

A a fall in demand for the industry's product
B a greater use of machinery in the production of the industry's output
C a rise in wages paid in similar occupations in other industries
D a weakening of trade union influence in the industry

3. M/J 01/P3

What could cause an immediate increase in the supply of teachers?

A an increase in teachers wages
B an increase in the qualifications required to teach
C an increase in the number of teaching jobs available
D an increase in unemployment in alternative occupations

4. M/J 03/P3/Q5

Which of the following will necessarily cause the supply curve of labour in a particular industry to shift to the right?

A a fall in wages paid in similar occupations
B a greater use of machinery
C an increase in demand for the product
D a strengthening of trade union influence in the industry

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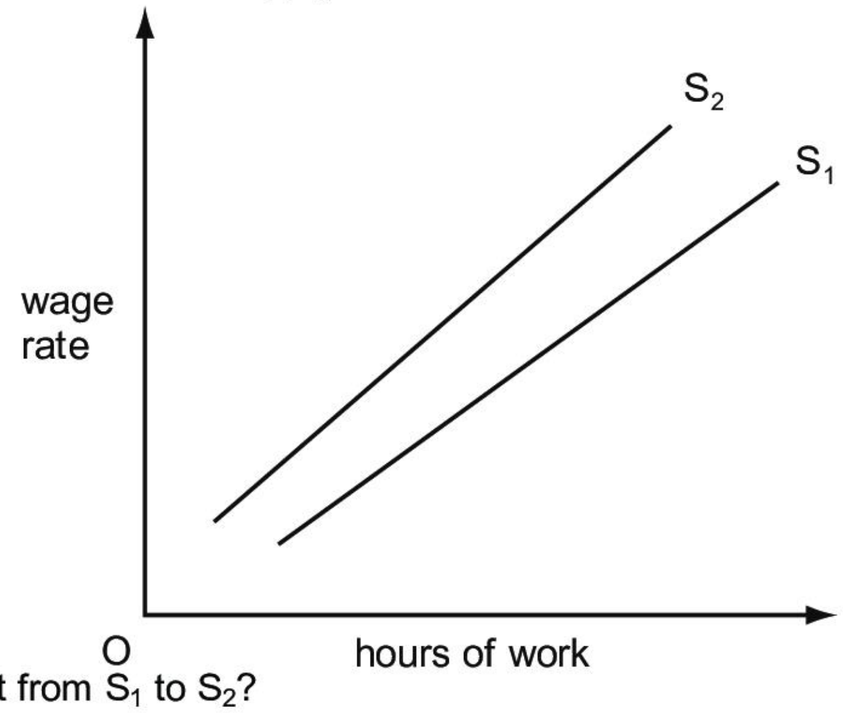
5. M/J 05/P3/Q6

In the diagram S_1 is an individual worker's initial supply of labour curve.

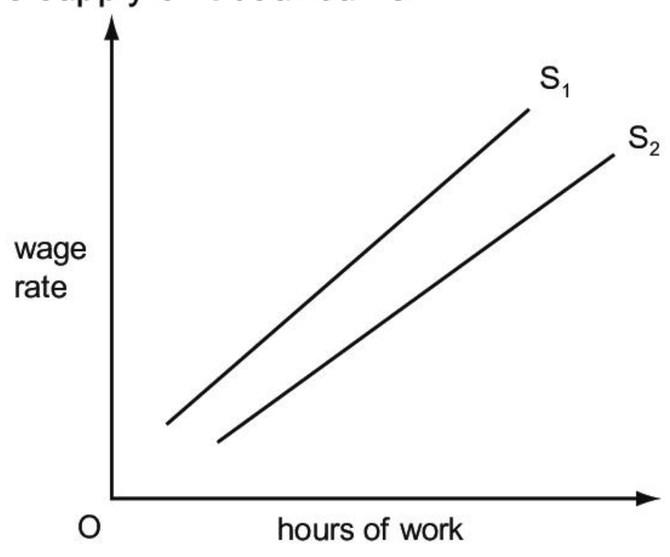


What could cause the curve to shift from S_1 to S_2?

A an increase in the hourly wage rate
B an increased preference for leisure
C an increase in the opportunity cost of leisure
D an increase in work satisfaction

6. M/J 10/P32/Q4

In the diagram S_1 is an individual worker's supply of labour curve.



What could cause the curve to shift from S_1 to S_2?

A a decrease in the hourly wage rate
B a decrease in work satisfaction
C a decrease in the opportunity cost of leisure
D a decreased preference for leisure

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Answers Section

1. D
A decrease in the hourly wage rate would only cause movement along the supply curve, since the wage rate is represented by the y-axis. So option A cannot be the answer. In this example the supply curve has shifted to the right which means that the worker will be willing to work more at each wage rate. The opportunity cost of leisure is simply the wage rate paid to the worker, so once again any change in the wage rate will not cause the supply curve to shift. A decreased preference of leisure means that the worker now prefers to work which explains why he is willing to work more hours at every wage rate. So option D states the correct cause.

2. C

3. D
An immediate increase in supply of teachers can only be possible if people who are already qualified / graduate decide to move into teaching job. Else of all other options require a long period of education before becoming a teacher and therefore cannot cause an immediate increase in supply.

4. A
A fall in wages paid in similar occupations increases the mobility of people from falling wages industry and will shift to this industry. This will increase the supply and shift supply curve to the right.

5. B
For the same wage, if the worker will prefer to work lesser hours it will shift the supply curve from S_1 to S_2.

6. C
When leisure becomes lesser preference, willingness to work increases. For the same wage the worker will prefer to work more hours, which will shift the supply curve from S_1 to S_2. Wage rate changes will cause a movement along the same curve rather than shifting it.

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11.4 Marginal cost of labour

1. **M/J 16/P32/Q15**
To increase the number of cleaners at a local school from 10 to 11, the employer has to raise the hourly rate of pay from $8.00 to $8.50.
What is the marginal cost of labour per hour to the employer?
A $0.50 **B** $13.50 **C** $88.50 **D** $93.50

2. **O/N 15/P33/Q6**
To increase its labour force from 20 to 21 workers, a firm has to increase the daily wage rate from $50 to $52.
What is the marginal cost of labour per day?
A $42 **B** $52 **C** $92 **D** $1092

3. **O/N 14/P14/Q6**
To increase the labour force from 30 to 31 workers, an entrepreneur is forced to increase the daily wage rate from $40 to $41.
What is the marginal cost of labour per day?
A $1 **B** $31 **C** $71 **D** $1271

4. **O/N 14/P32/Q5**
To increase its labour force from 100 to 101 workers, a firm has to increase its daily wage rate from $500 to $502.
What is the marginal cost of labour per day?
A $2 **B** $200 **C** $202 **D** $702

5. **O/N 14/P33/Q5**
A firm currently employs 100 workers and its daily wage bill is $30 000.
An increase in its labour force to 101 workers would result in a $502 increase in its daily wage bill.
What is the marginal cost of labour per day?
A $2 **B** $202 **C** $502 **D** $30 502

6. **O/N 12/P33/Q5**
To increase its labour force from 30 to 31 workers, a firm has to increase the daily wage rate from $50 to $52.
What is the marginal cost of labour per day?
A $52 **B** $62 **C** $112 **D** $1612

7. **O/N 10/P32/Q6**
To increase its labour force from 100 to 101 workers, a firm has to increase the daily wage rate from $300 to $302. What is the marginal cost of labour per day?
A $2 **B** $202 **C** $302 **D** $502

8. **M/J 09/P32/Q4**
To increase its labour force from 100 to 101 workers, a firm has to increase its daily wage rate from $400 to $405. What is the marginal cost of labour per day?
A $5 **B** $405 **C** $905 **D** $40 905

9. **M/J 04/P3/Q4**
To increase its labour force from 50 to 51 workers, a firm has to increase the daily wage rate from $600 to $610. What is the marginal cost of labour per day?
A $10 **B** $510 **C** $610 **D** $1110

10. **O/N 03/P3/Q6**
To increase the labour force from 30 to 31 workers, an entrepreneur is forced to increase the daily wage rate from $40 to $42.
What is the marginal cost of labour per day?
A $2 **B** $42 **C** $62 **D** $102

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11. O/N 99/P3

To increase the labour force from 20 to 21 workers, an entrepreneur is forced to increase the daily wages rate from $30 to $31.
What is the marginal cost of labour per day ?

A $1 **B** $21 **C** $31 **D** $51

12. M/J 92/P3

To increase the number of cleaners at a local school from 10 to 11, the employer has to raise the hourly rate of pay from £3.00 to £3.25.
What is the marginal cost of labour per hour to employers?

A £ 0.25 **B** £ 3.25 **C** £5.75 **D** £33.25

13. M/J 14/P31/Q5

A firm currently employs 100 workers at a daily wage rate of $500 per worker.It calculates that the marginal cost per day of hiring an additional worker would be $702. By how much would the daily wage rate per worker have to be increased to attract an extra worker?

A $2 **B** $70.20 **C** $202 **D** $702

14. O/N 12/P31/Q6

A firm currently employs 30 workers at a daily wage of $50. The marginal cost of employing one extra worker is $112 per day. By how much will the firm have to increase the daily wage in order to increase its labour force from 30 to 31 workers?

A 2 % **B** 4 % **C** 6.3 % **D** 7.5 %

15. M/J 99/P3

An employer currently employs 200 workers.
The marginal cost of hiring an additional worker is £502.
If the employer's current wage bill is £20 000, by how much will the wage paid per worker need to be increased in order to attract one more worker?

A £1.50 **B** £2.00 **C** £2.50 **D** £3.00

16. O/N 08/P3/Q5

A firm currently employs 30 workers at a daily wage rate of $40.
It calculates that the marginal cost per day of hiring an additional worker would be $102.
By how much would the daily wage rate have to be increased to attract an extra worker?

A $2 **B** $42 **C** $62 **D** $102

17. M/J 97/P3/Q18

Which ratio measured labour costs per unit of output?

A $\frac{\text{number employed}}{\text{total labour costs}}$ **C** $\frac{\text{total output}}{\text{number employed}}$

B $\frac{\text{total labour costs}}{\text{number employed}}$ **D** $\frac{\text{total labour costs}}{\text{number employed} \times \text{output per worker}}$

18. O/N 00/P3

The table shows the current position of a firm in a perfectively competitive industry.

	Factor X	**Factor Y**
Marginal physical product	2	8
Factor price	$1.50	$6.00

If the firm sells is product $1 and aims to maximize profit, what should it employ?

A more of both X and Y **C** more of Y and less of X

B more of X and less of Y **D** less of both X and Y

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19. M/J 00/P3

The table a firm's total product schedule.

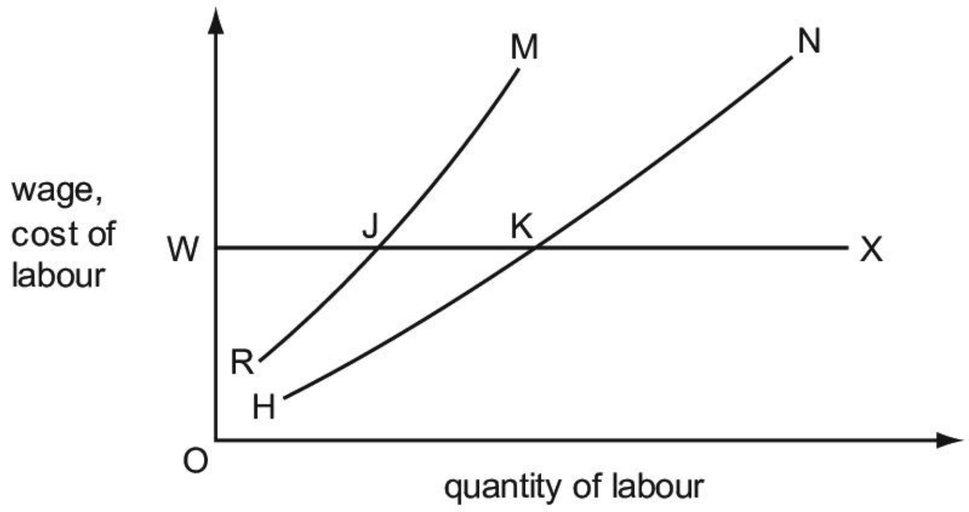
Number of workers	Total product (units)
1	8
2	14
3	18
4	20
5	21

Labour is firm's only variable factor input.
If each worker is paid £20, what is the marginal cost of the 21st unit?

A £8 **B** £14 **C** £18 **D** £20

20. O/N 13/P32/Q6

In the diagram, HN is the initial supply of labour curve faced by a firm, and RM is its initial marginal cost of labour curve.



What will be the firm's new labour supply curve, if the workers join a trade union and achieve a union negotiated wage, OW?

A RJX **B** HKX **C** WJM **D** WKN

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Answers Section

1. B

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{11} - TCL_{10}}{L_{11} - L_{10}} = \frac{(8.5 \times 11) - (8 \times 10)}{11 - 10} = \$13.50$$

Hence the marginal cost of labour per day is $112.

2. C

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{21} - TCL_{20}}{L_{21} - L_{20}} = \frac{(52 \times 21) - (50 \times 20)}{21 - 20} = \$92$$

Hence the marginal cost of labour per day is $112.

3. C

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{31} - TCL_{30}}{L_{31} - L_{30}} = \frac{(41 \times 31) - (40 \times 30)}{31 - 30} = \$71$$

Hence the marginal cost of labour per day is $71.

4. D

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{101} - TCL_{100}}{L_{101} - L_{100}} = \frac{(502 \times 101) - (500 \times 100)}{101 - 100} = \$702$$

Hence the marginal cost of labour per day is $702.

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5. C

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{101} - TCL_{100}}{L_{101} - L_{100}} = \frac{(30,000) - (502 \times 101)}{101 - 100} = \$502$$

Hence the marginal cost of labour per day is $502.

6. C

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{31} - TCL_{30}}{L_{31} - L_{30}} = \frac{(52 \times 31) - (50 \times 30)}{31 - 30} = \$112$$

Hence the marginal cost of labour per day is $112.

7. D

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{101} - TCL_{100}}{L_{101} - L_{100}} = \frac{(302 \times 101) - (300 \times 100)}{101 - 100} = 30,502\ 30,000 = \$502$$

Hence the marginal cost of labour is $502.

8. C

According to statement.

Total cost of 100 workers = 100 x 400
= $40,000
Total cost of 101 workers = 101 x 405
= 44,905
Therefore marginal cost of labour per day
$= TC_{101} - TC_{100}$
= $ 40,905 – $ 40,000
= $ 905

9. D

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{51} - TCL_{50}}{L_{51} - L_{50}} = \frac{(31 \times 51) - (30 \times 50)}{51 - 50} = \$1110$$

Hence the marginal cost of labour per day is $1110.

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10. D

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{31} - TCL_{30}}{L_{31} - L_{30}} = \frac{(42 \times 31) - (40 \times 30)}{31 - 30} = \$102$$

Hence the marginal cost of labour per day is $102.

11. D

Total cost of labour is :

$$TCL = \text{Wage Bill} = W \times L$$

Marginal cost of labour is change in total cost due to an extra unit of labour. In this case,

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_{21} - TCL_{20}}{L_{21} - L_{20}} = \frac{(31 \times 21) - (30 \times 20)}{21 - 20} = \$551$$

Hence the marginal cost of labour per day is $551.

12. C

Marginal cost of labour (MCL) in change in total cost of labour (TCL) due to an additional unit of labour (input). Initially the total cost of labour was £ 30.

$$TCL_1 = W_1 \times L_1 = 10 \times 3 = 30$$

When cleaners increased to 11, wage rate rose to £ 3.25. The new total cost of labour was £35.75

$$TCL_2 = W_2 \times L_2 = 11 \times 3.25 = 35.75$$

$$MCL = \frac{\Delta TCL}{\Delta L} = \frac{TCL_2 - TCL_1}{L_2 - L_1} = \frac{35.75 - 30}{11 - 10} = 5.75$$

Therefore the marginal factor of labour was £ 5.75

13. A

$TCL = \text{Wage Bill} = W \times L$

Currently,

total wage bill = $500 × 100
= $50,000

For the 101st worker

Marginal cost = $702

therefore total wage bill for 31 workers = $ (50,000+702)
= $ 50,702

As $W = \frac{TCL}{L} = \frac{50,702}{101} = \$502$

The change in wage rate = 502 – 500 = $2

14. B

$TCL = \text{Wage Bill} = W \times L$

Currently,

total wage bill = $50 × 30
= $1500

For the 31st worker

Marginal cost = $112

therefore total wage bill for 31 workers = $ (1500+112)
= $ 1612

As $W = \frac{TCL}{L} = \frac{1612}{31} = \$52$

The change in wage rate = 52 – 50 = $2

$\%\text{age increase in wage rate} = \frac{2}{50} \times 100 = 4\%$

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15. B

Current wage bill £ 20,000 whereas total employed workers are 200 therefore wage is 100, i.e.,

$$TCL = \text{Wage Bill} = W \times L$$

$$W_1 = \frac{TCL_1}{L_1} = \frac{20,000}{200} = 100$$

The total wage bill for 201 workers will £ 20,502 as marginal cost is £ 502. The wage rate for 201 workers will be as follows.

$$W_2 = \frac{TCL_2}{L_2} = \frac{20,502}{201} = 102$$

The wage rate has increased by £ 2 therefore B is the answer.

16. A

$TCL = \text{Wage Bill} = W \times L$

Currently,

total wage bill = \$40 × 30
= \$1200

For the 31st worker

Marginal cost = \$102

therefore total wage bill for 31 workers = \$ (1200+102)
= \$ 1302

As $W = \frac{TCL}{L} = \frac{1302}{31} = \$42$

The change in wage rate = \$42 – \$40

Therefore wage rate is increased by \$2.

17. D

Labour costs per unit of output can be obtained by dividing total labour costs with the product of number employed and output per worker (i.e., total output).

18. A

This can be explained through a table below.

	Factor X	Factor Y
MPP	2	8
Factor price (MCL)	\$1.50	\$6.00
Price (MR)	\$1	\$1
MRP = (MR × MPP)	\$2	\$8
Condition	MRP>MCL	MRP>MCL
Decision	X -	Y -

According to the table, factor price is MCL whereas MRP is calculated by using product of MR (price) and MPP. According to table in cases of both X and Y, MRP is greater than MCL, therefore firm will employ more of X and Y unit MRP = MCL.

19. D

Marginal cost is the variable factor cost for that unit. Labour is the only variable factor cost which is equal to £20 per worker for every unit. Hence the marginal cost will also be equal to £20 for the 21st unit.

20. D

When a new higher wage rate is negotiated by the union, the supply curve is altered. At wage OW, the supply curve will be horizontal up to point K. Employers cannot pay workers below wage OW, and workers willing to work below wage OW are on the supply curve HK. So all workers up to the point K will be happy to work at wage OW. However, in order to stimulate even more workers to work, the firm will have to pay a higher wage because workers on the supply curve KN want a higher wage to work. Therefore the supply curve is WKN, option D.

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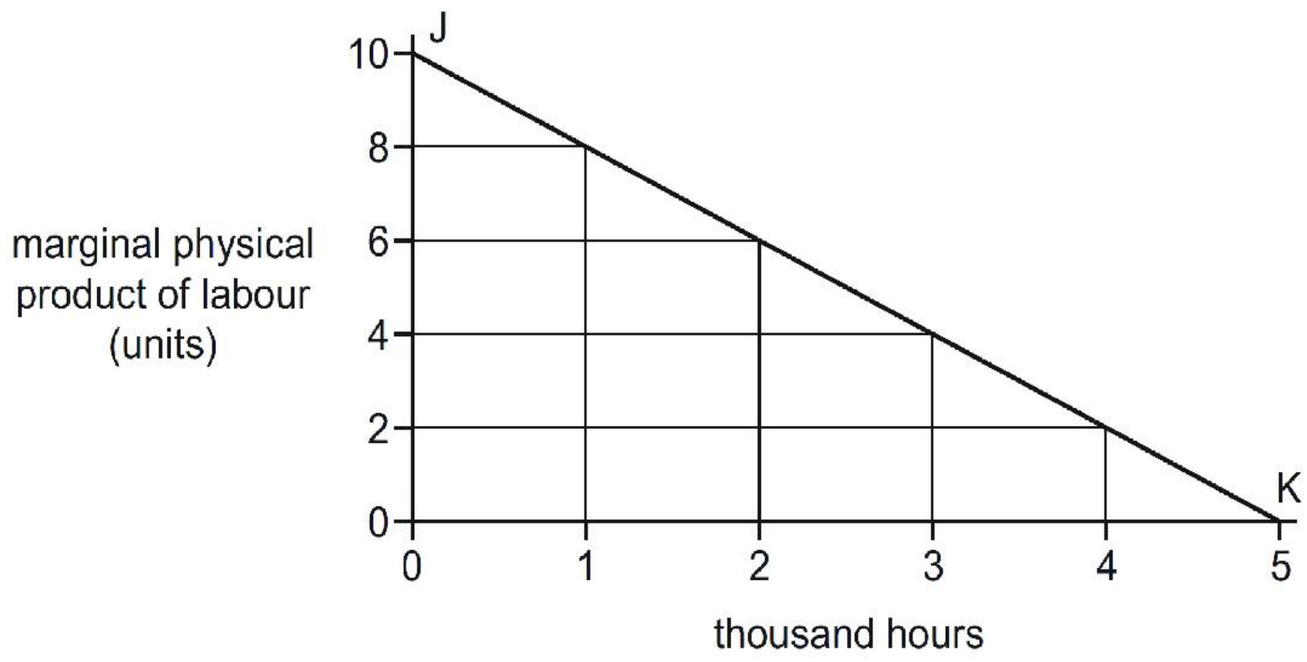
11.5 Wage determination in perfect market

1. M/J 15/P32/Q5

A firm operates under perfect competition in both product and factor markets with labour as the only variable factor input. In the diagram, the line JK shows the relationship between the marginal physical product of labour and the hours worked:

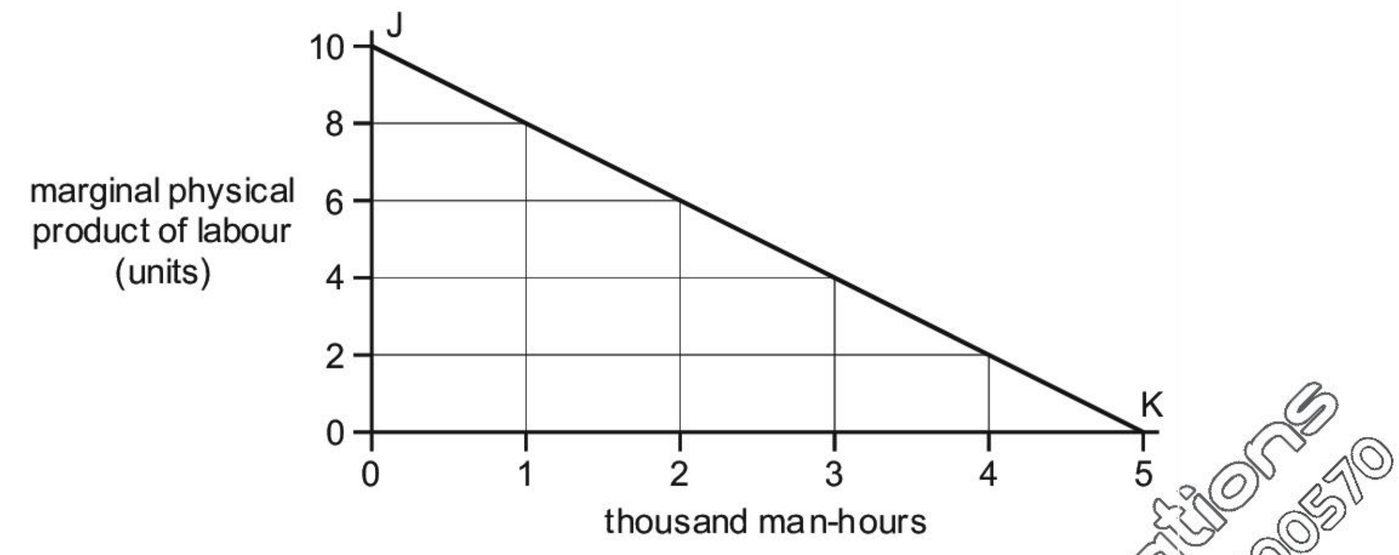


When the price of the product is $1.60, the firm uses 3000 hours of labour.
What is the hourly wage?

A $0.40
B $2.40
C $5.60
D $6.40

2. O/N 13/P32/Q4

A firm operates under perfect competition in both product and factor markets with labour as the only variable factor input. In the diagram, the line JK shows the relationship between the marginal physical product of labour and the man hours hired.



The price of the product is $1.60.
What will be the number of man-hours hired by the firm if the hourly wage is $6.40?

A 1000
B 2000
C 3000
D 4000

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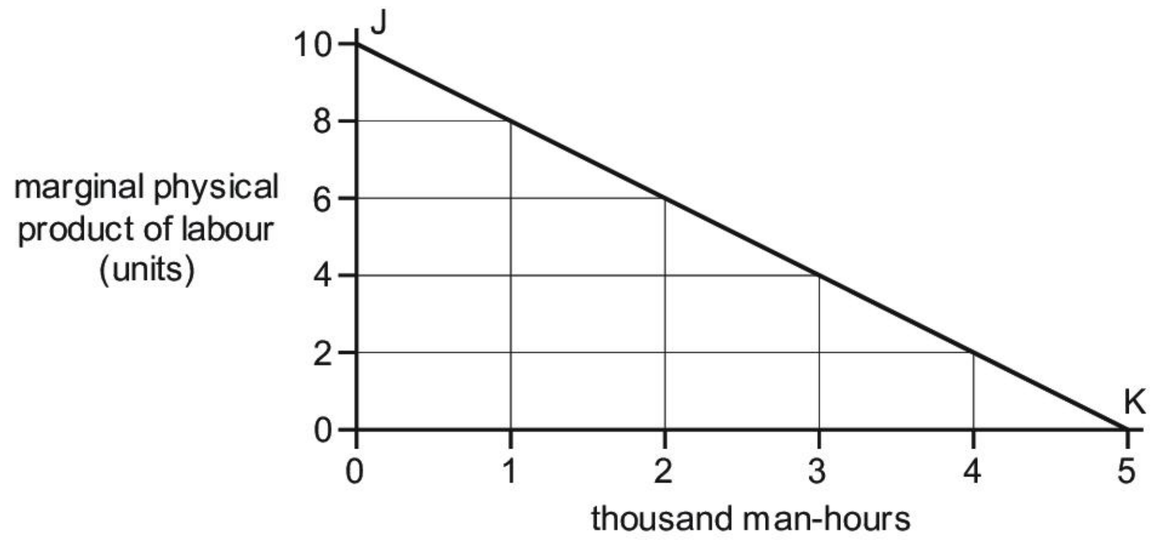
3. M/J 13/P32/Q5

A firm operates under perfect competition in both product and factor markets with labour as the only variable factor input. In the diagram, the line JK shows the relationship between the marginal physical product of labour and the man-hours hired.

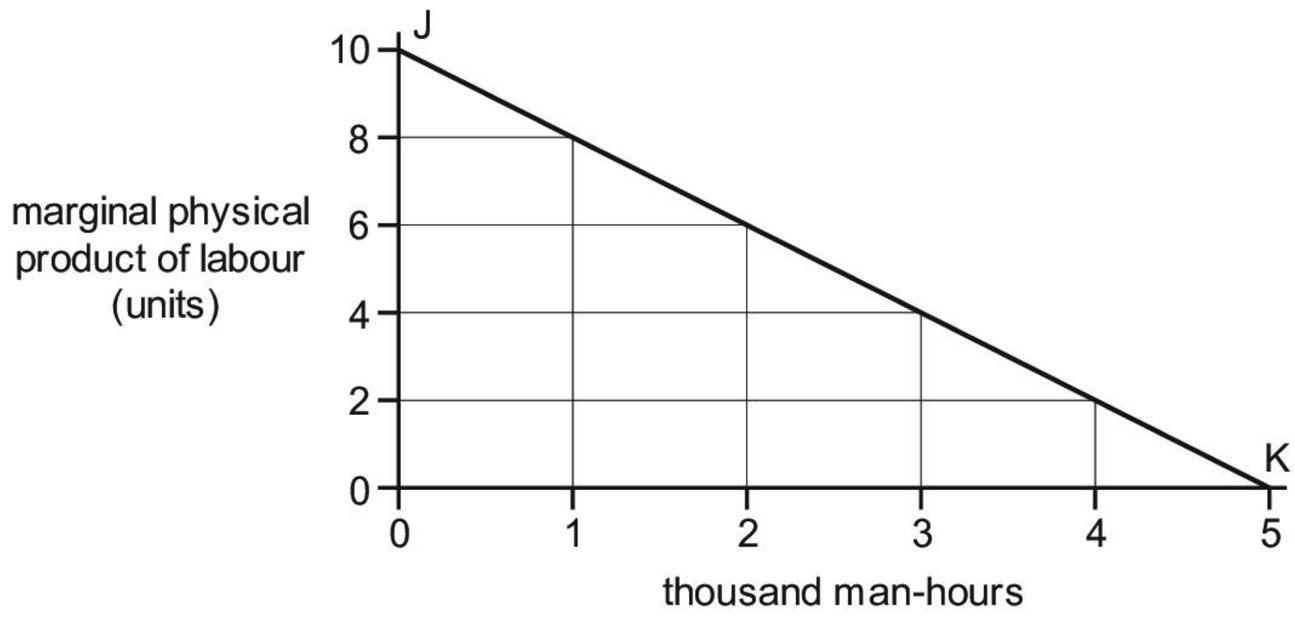


When the hourly wage is $3.20, the firm employs 4000 man-hours per day.What is the price of the product?

A $1.60
B $2.00
C $3.20
D $6.40

4. O/N 13/P33/Q5

A firm operates under perfect competition in both product and factor markets with labour as the only variable factor input. In the diagram, the line JK shows the relationship between the marginal physical product of labour and the man hours hired.



How many man-hours will the firm hire if the price of the product is $1.60 and the hourly wage is $3.20?

A 1000
B 2000
C 3000
D 4000

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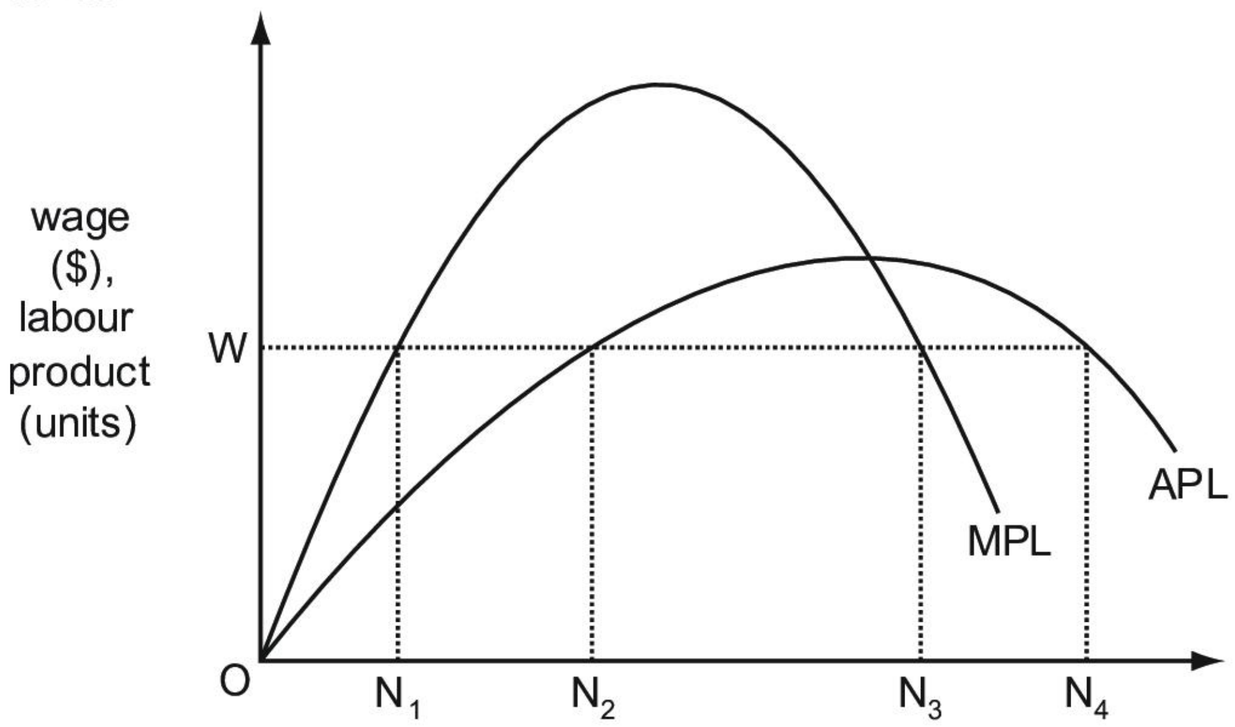
5. O/N 15/P33/Q5, M/J 12/P32/Q4

The diagram shows a perfectly competitive firm's average product of labour (APL) and marginal product of labour (MPL) curves.



The market price of the firm's product is $1.
How many workers will the firm employ at a wage of OW?

A ON_1 **C** ON_3

B ON_2 **D** ON_4

6. M/J 14/P32/Q5

The table shows the marginal revenue product of labour schedule of a profit-maximising firm producing under conditions of perfect competition.

number of workers	**1**	**2**	**3**	**4**	**5**	**6**	**7**
marginal revenue product ($)	125	130	135	140	135	130	125

If the wage is $135, what is the maximum number of workers the firm will employ?

A 3 **C** 5

B 4 **D** 6

7. M/J 13/P31/Q3

The table shows the current position of a firm in a perfectly competitive industry.

	factor X	**factor Y**
Marginal physical product	2	4
factor price	$5.00	$10.00

If the firm sells its product at $3 and aims to maximise profits, what should it employ?

A more of both X and Y **C** more of Y and less of X

B more of X and less of Y **D** less of both X and Y

8. O/N 13/P31/Q4

A firm in an initial profit maximising position employs two factors, X and Y, to produce a good which is sold for $3. Factor prices and productivities change. The new values are given in the table.

factor	marginal physical product	price ($)
X	2	4
Y	5	20

What should the firm employ to achieve equilibrium?

A less of both X and Y **C** more of Y and less of X

B more of X and less of Y **D** more of both X and Y

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9. M/J 13/P32/Q4

The table shows the current position of a firm in a perfectly competitive industry.

	factor X	factor Y
marginal physical product	3	12
factor price	$5.00	$10.00

If the firm sells its product for $1 and aims to maximise profits, what should it employ?

A more of both X and Y
B more of X and less of Y
C more of Y and less of X
D less of both X and Y

10. O/N 13/P33/Q4

The table shows the current position of a firm in a perfectly competitive industry.

	factor X	**factor Y**
marginal physical product	2	4
factor price	$5.00	$10.00

If the firm sells its product for $1 and aims to maximise profits, what should it employ?

A more of both X and Y
B more of X and less of Y
C more of Y and less of X
D less of both X and Y

11. O/N 10/P32/Q4, M/J 15/P33/Q4

A firm in a perfectly competitive industry employs two factors of production, X and Y.
The table shows the factor price and the current marginal physical product of these two factors.

	factor X	factory Y
factor price	$2.50	$6.00
marginal physical product	2	8

If the firm sells its product for $1 and aims to maximise profits, what should it do?

A employ less of both X and Y
B employ less of X and more of Y
C employ more of both X and Y
D employ more of X and less of Y

12. M/J 08/P3/Q4

The table shows the current position of a firm in a perfectly competitive industry.

	factor X	factory Y
marginal physical product	2	8
factor price	$5.00	$10.00

If the firm sells its product for $1 and aims to maximise profits, what should it employ?

A more of both X and Y
B more of X and less of Y
C more of Y and less of X
D less of both X and Y

13. O/N 06/P3/Q4

A firm working in perfect competition sells its product for $1. The table gives the average physical product with different numbers of workers.

number of workers	average physical product
1	20
2	18
3	16
4	14

Which wage rise would cause the firm to employ two instead of three workers?

A $8 to $10
B $10 to $14
C $14 to $18
D $16 to $18

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14. O/N 98/P3

A firm in an initial profit-maximising position employs two factors, X and Y to produce a good which is sold for £3. Factor process and productivities change. The new values are given in the table.

Factor	Marginal physical product	Price (£)
X	2	4
Y	5	20

What should the firm employ to achieve equilibrium?

A less of both X and Y
B more of X and less of Y
C more of Y and less of X
D more of both X and Y

15. O/N 97,O/N 03/P3

A profit-maximizing firm producing under conditions of perfect competition has the following marginal revenue product schedule.

Number of workers	1	2	3	4	5	6	7
Marginal revenue product ($)	135	140	145	150	145	140	135

If the wage is $ 140, what is the maximum number of workers the firm will employ?

A 2 **B** 4 **C** 5 **D** 6

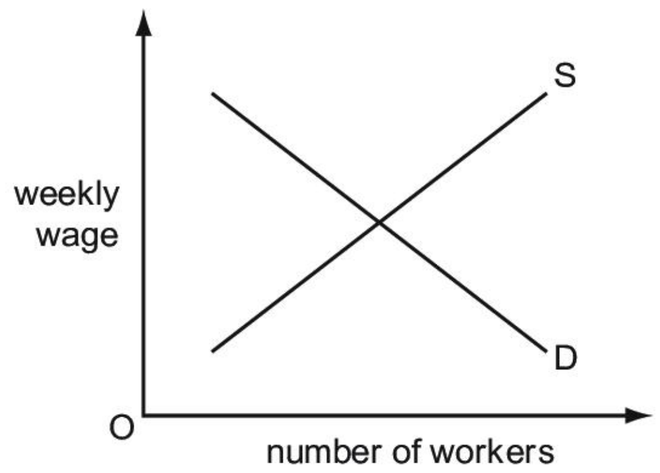
16. M/J 93/P3

In all market conditions, a profit-maximising firm will hire units of a variable factor up to the point where

A the last unit hired adds as much to revenue as it does to cost.
B the price of the last unit hired is equal to the value of its product.
C the value of the physical product of the last unit hired begins to fall.
D the price of the last unit hired is equal to the revenue derived from the sale of its product.

17. O/N 13/P3/Q5

The diagram shows the initial position of a labour market.



The government increases the number of statutory paid holidays to which workers are entitled from 10 days a year to 15 days a year.
How will this affect the supply and demand curves in the diagram?

	employers' demand curve	**workers' supply curve**
A	shifts to left	shifts to right
B	shifts to left	shifts to left
C	shifts to right	shifts to right
D	shifts to right	shifts to left

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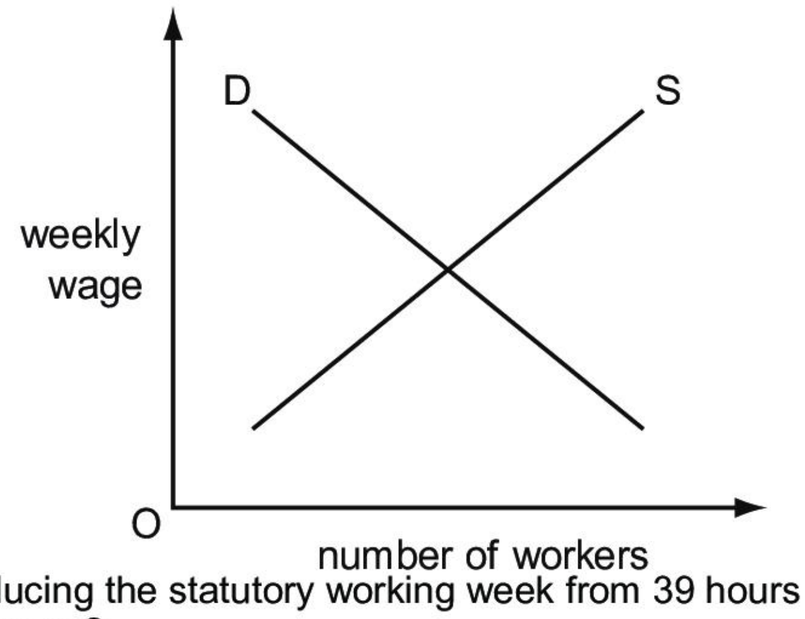
18. O/N 09/P32/Q7

The diagram shows the initial position of a labour market.



The government introduces a law reducing the statutory working week from 39 hours to 36 hours. How will this affect the supply and demand curves in the diagram?

	employers' demand curve	workers' supply curve
A	shifts to right	shifts to left
B	shifts to right	shifts to right
C	shift to left	shifts to left
D	shifts to left	shift to right

19. M/J 04/P3/Q5

There is an increase in the supply of female labour.
What will be the likely effect on male and female wages?

	male wages	**female wages**
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

20. M/J 16/P31/Q16, M/J 92/P3

Which of the following could raise the level of employment in an industry producing a good X?

A the removal of a sales tax on good X.
B the removal of a quota on an imported good which is a substitute for good X.
C the imposition of a tariff on an imported good which is a complement to good X.
D the introduction of an employer's contribution to a state welfare scheme for each employee.

21. O/N 11/P32/Q6

The table shows the labour market for an economy in four separate years.
In which year was there excess demand in the labour market?

	working population (millions)	unemployment rate (%)	job vacancies (thousands)
A	19	1.0	180
B	19	2.0	80
C	20	1.1	240
D	20	1.5	100

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22. O/N 91/P32

The table shows the labour market for an economy in five separate years.
In which year was there excess demand in the labour market?

Year	Working population (millions)	Unemployment Rate (%)	Job Vacancies (thousands)
A	20	1.0	200
B	20	1.5	100
C	19	2.0	2.0
D	20	1.1	240

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Answers Section

1. D

A profit maximizing firm will hire workers up to the point where the last worker will add as much to revenue as it does to cost.
In this case
After plotting hours of labour on the above graph, it is evident that marginal physical product will be 4 units. Now
MRP = P x MPP = MCL= Wage rate Þ 1.60 x 4 = $6.40 = hourly wage rate

2. C

A profit maximizing firm will hire workers up to the point where the last worker will add as much to revenue as it does to cost.
In this case

$$MRP = P \times MPP = MCL \Rightarrow 1.60 \times MPP = 6.40 \text{ Þ} \qquad MPP = \frac{6.40}{1.6} = 4 \text{ units}$$

After plotting MPP on the above graph, it is evident that firm will hire 3000 man hours for marginal physical product 4 units

3. A

A firm will be in equilibrium if marginal revenue product is equal to wage (marginal cost). Here the marginal cost is $3.20. Since the firm hires 4000 man hours, from the graph it can be seen that marginal physical product is 2. In case of profit maximizing equilibrium,

$$MRP = P \times MPP = MCL \Rightarrow P \times 2 = 3.20 \Rightarrow P = \frac{3.20}{2} = \$1.6$$

Hence, option A is correct.

4. D

Profit maximizing firm will hire man-hours upto where MRP=MCL.
MCL= wage rate = $1.60
Now

$$MRP = P \times MPP = MCL \Rightarrow 1.60 \times MPP = 3.20 \Rightarrow \qquad MPP = \frac{3.20}{1.6} = 2$$

After plotting MPP on the above graph, it is evident that firm will hire 4000 man hours.

5. C

A competitive firm will hire workers up to point where the last worker adds as much to cost as it does to revenue. The marginal cost of hiring the worker will be the wage rate which is wage W here. The addition to revenue on the other hand will be the marginal physical product of labor (as MRP = P x MPP and P= $1, therefore, MRP = MPP). So equilibrium will be where MP_L is equal to wage. So the firm will employ workers up to the ON_3.

6. C

Marginal revenue product is the value of the additional output produced by the new worker. The wage can be described as the marginal cost since it is the extra cost of hiring the worker. A profit-maximizing firm will hire up to the point where marginal revenue equals marginal cost—presented differently, marginal revenue product equals wage. Wage equals to $135 and the MRP of the 3rd and 5th workers is $135, so the firm will employ 5 workers. C is the correct answer.

7. A

This can be explained through table below.

	X	Y
MPP	2	4
Price (MR)	$3	$3
MRP (MR × MP)	3x2 = $6	3x4 = $12
factor price=MCL	$5	$10
Condition	MRP>MCL	MRP>MCL
Decision	More	More

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8. B

This can be explained through table below.

	X	Y
MPP	2	5
Price (MR)	$3	$3
MRP (MR × MP)	3x2 = $6	3x5 = $15
factor price=MCL	$4	$20
Condition	MRP>MCL	MRP<MCL
Decision	More	Less

9. C

A profit maximizing firm will only consume up to the point where the last unit hired of a factor of production adds as much to revenue as it does to cost. The marginal revenue of a factor is called the marginal revenue product which can be found by multiplying marginal physical product with price since that is the value of the output produced by the factor. The marginal cost is simply the factor price.

	Factor X	Factor Y
Marginal physical product	3	12
Factor price	$5	$10
Marginal revenue product	3x$1=$3	12 x $1 = $12

If the factor price is greater than marginal revenue product then the firm employs less; if marginal revenue product is more than factor price the firm employs more. The equilibrium is where marginal revenue is equal to marginal cost. In this case, the factor price for factor X is greater than its marginal revenue product, so the firm will employ less of factor X. On the other hand, the marginal revenue product of factory Y ($12) exceeds its factor price ($10), so the firm will employ more of factor Y. The answer, therefore, is option C.

10. D

This can be explained through table below.

	X	Y
MPP	2	4
Price (MR)	$1	$1
MRP (MR × MP)	$2	$4
factor price=MCL	$5.00	$10.00
Condition	MRP<MCL	MRP<MCL
Decision	Less	Less

11. B

This can be explained through table below.

	X	Y
MPP	2	8
Price (MR)	$1	$1
MRP (MR × MP)	$2	$8
factor price=MCL	$2.50	$6.00
Condition	MRP<MCL	MRP>MCL
Decision	Less	More

12. D

This can be explained through the table below.

	X	Y
MPP	2	8
Price (MR)	$1	$1
MRP (MR × MP)	$2	$8
MCL= factor price	$5	$10
Condition	MRP<MFC	MRP<MFC
Decision	Decrease	Decrease

According to table, factor price is MCL (Marginal cost of labour) whereas MRP is calculated by using product of MR (price) and MPP. According to table, in cases of both X and Y, MRP is lesser than MCL, therefore firm will employ lesser of X and Y until MRP = MCL.

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13. B

From the given statement, Price = Marginal revenue = $1
Marginal revenue product are calculated with the help of table below.

No. of workers	Average product	Total product = AP × L	MPP	MRP=MPPxMR
1	20	20 × 1 = 20	20	20 × 1 =20
2	18	18 × 2 = 36	16	16 × 1=16
3	16	16 × 3 = 48	12	12 × 1=12
4	14	14 × 4 = 56	8	8 × 1=8

The firm will employ labour where MRP = MCL. The MRP for 2nd worker is 16 whereas MRP for 3rd worker is 12. In order to employ 3 workers, the wage, which is equal to MCL (Marginal cost of labour), should be equal to or less than $12. On the other hand, in order to employ 2 workers wage rate should be equal to or less than $16. Therefore the wage rate should increase between the range $10 to $14.

14. B

The table below helps to elaborate the situation.

Factor	MPP	Price of product	MRP= MPPxP	MCL= Price (of labour)	Decision
X	2	3	2 × 3 = £ 6	£ 4	MRP>MFC
Y	5	3	3 × 5 = £ 15	£ 20	MRP<MFC Y

According to the table, the calculations for marginal revenue product are shown. As shown, in case of X, MRP is greater than MFC therefore the firm will increase the employment of X. The situation is vice versa in Y therefore the firm will decrease the employment of Y.

15. D

A firm will employ labour where Marginal revenue product is equal to marginal cost of labour (MCL) and MCL is at its falling part. According to table, MRP is equal to MCL (wage) at 2 and 6. However MCL is at its falling part when number of workers are 6 therefore it will employ 6 workers.

Number of workers	1	2	3	4	5	6	7
Marginal revenue product ($)	135	140	145	150	145	140	135
Wage = MCL	140	140	140	140	140	140	140

16. A

According to MRP theory, a profit maximizing firm will establish its equilibrium at a point where marginal revenue product equals marginal cost of labour therefore that unit's contribution to revenue will equal its cost as well.

17. A

The increase in the number of paid holidays will prompt more people to work and thus enter the labor force. This will cause the workers' supply curve to shift to the right. Employers will now find it more expensive to hire more workers since they have to number of paid holidays has risen. The employers' demand curve will shift to the left. So option A is correct.

18. C

Reduction in statutory week from 39 to 36 hours means less supply of labour as well as less demand by employer.

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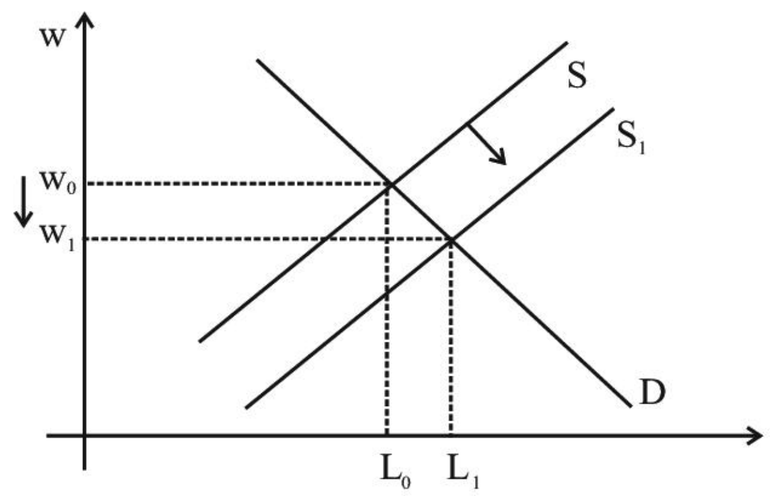
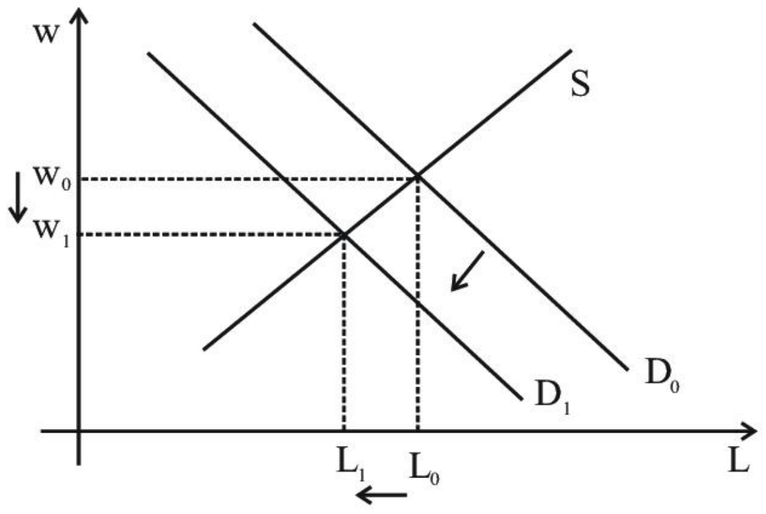
19. A

Increase in supply of female workers will decrease wages of females and increase employment.



As female worker are substitute to male workers and now cheaper due to fall in their wages. This will decrease the demand of males workers leading to decrease in male wages with the decrease in employment as shown below.



20. A

Among all options, A is the answer because removal of a sales tax on good will increase the supply of product and therefore there will be an increase in demand of labour. This will allow the firms to employ more labour.

21. C

Working population (millions)	Unemployment rate (%)	No. of unemployed (thousands)	Job vacancies (thousands)
19	1.0	190	180
19	2.0	380	80
20	1.1	220	240
20	1.5	300	100

The number of unemployed was calculated by multiplying working population with the unemployment rate. So for the first one it is 19,000,000 x 0.01= 190,000. Excess demand is when job vacancies is greater than number of unemployed which is in option C.

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22. D

According to the table, the unemployed are the supply for labour. Job vacancies is demand for labour. Excess demand will be when demand is greater than supply. The number of unemployed people can be calculated by multiplying the unemployment rate with working population. The table below helps to show the supply and demand for labour.

Year	Working population (thousands)	Unemployment Rate %	Unemployment (thousands)	Job vacancies	Excess Demand
A	20,000	1.0	0.01× 20,000 = 200	200	X
B	20,000	1.5	300	100	X
C	19,000	2.0	380	200	X
D	20,000	1.1	220	240	p
E	24,000	1.5	360	300	X

Among all years only in year D, there is shortage of labour. The demand is 240 thousands however supply is only 220 thousands therefore D is the answer.

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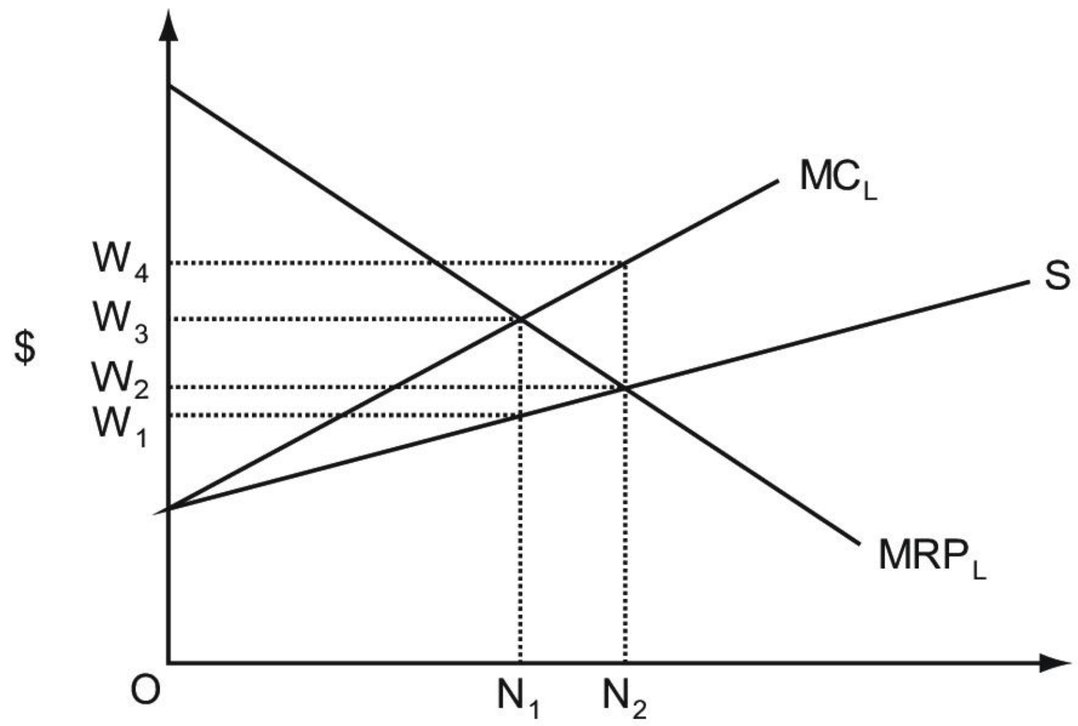
11.6 Wage determination in monopsony

1. O/N 12/P32/Q4, O/N 09/P32/Q6, M/J 04

In the diagram, MRPL is a firm's marginal revenue product of labour curve, S is its supply of labour curve, and MCL its marginal cost of labour curve.



Assuming profit maximisation, how many workers will the firm employ and what wage will it pay?

	number employed	wage
A	N_1	W_1
B	N_1	W_3
C	N_2	W_2
D	N_2	W_4

Answers Section

1. A

A profit maximizing firm will employ workers up to the point where the last worker adds as much to cost as he or she does to revenue, in other words: marginal cost of labour equals marginal revenue. The marginal cost curve is MC_L and marginal revenue curve is MRP_L, therefore the firm will hire N_1 workers. However, the supply curve shows the willingness and ability of workers to work at different wage rates. So if we look at where N_1 quantity intersects S curve, which leads to wage W_1, we can ascertain the wage rate paid for N_1 labour. The firm would pay the workers W_1 rather than W_3 since workers are willing to accept W_1 wage for N_1 labour.

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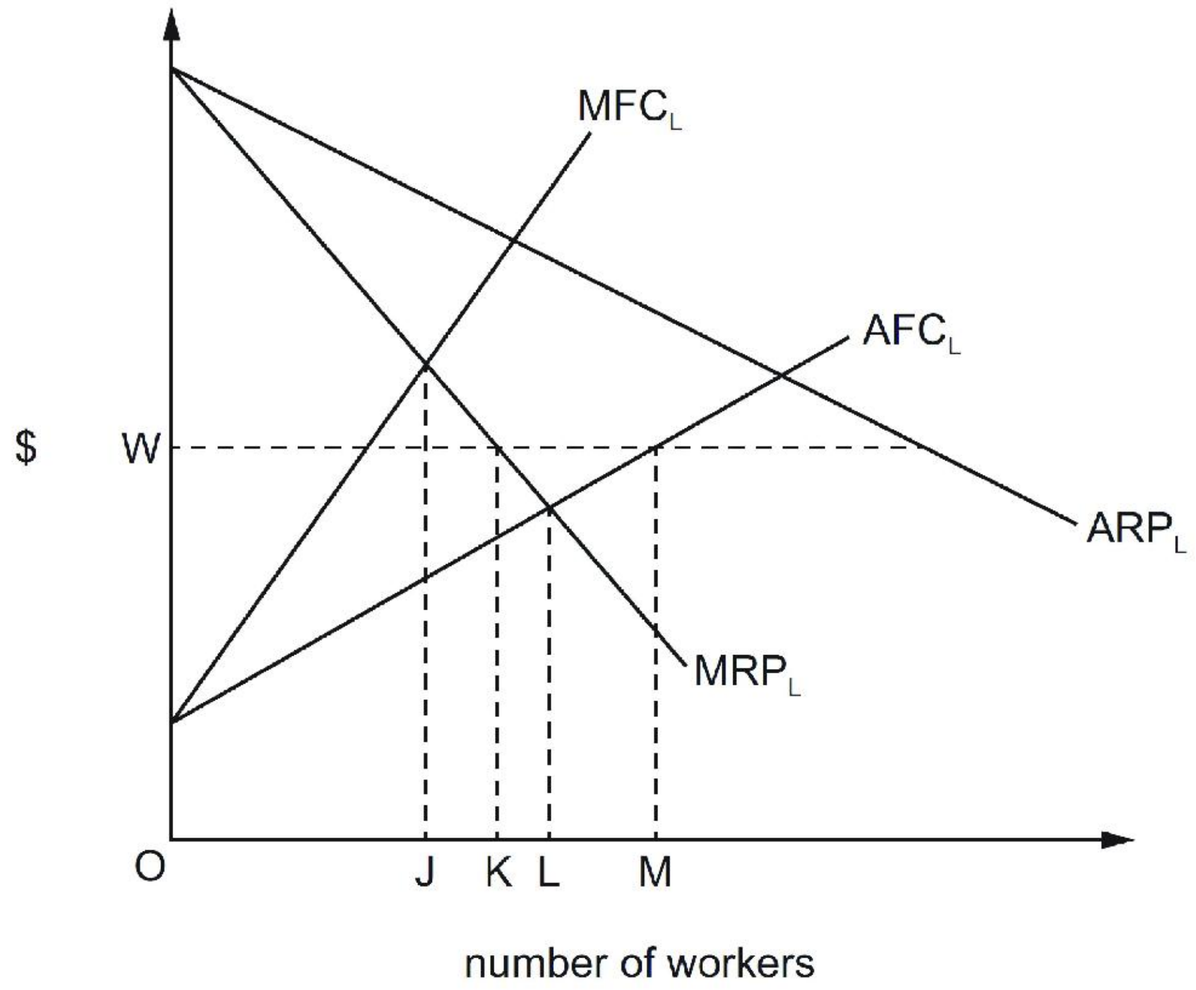
11.7 Wage determination with trade union

1. M/J 16/P31/Q15

In the diagram, the ARPL curve is the average revenue product of labour curve of a profit-maximising monopsony and the MRPL curve is its marginal revenue product of labour curve.
The firm pays its workers the minimum wage, OW, set by the country's government.
The curves AFCL and MFCL show what the firm's average and marginal factor cost curves would be in the absence of government intervention.



What will happen to the number of workers employed by the firm if the minimum wage is abolished?

A It will decrease by JK.
B It will decrease by KM.
C It will increase by JK.
D It will increase by JL.

2. M/J 15/P31/Q6

A trade union seeks to increase the wages a firm pays to its workers while at the same time preserving jobs.
What will strengthen the union's negotiating position?

A Capital and labour are close substitutes.
B The demand for the good produced by the firm is price elastic.
C The supply of labour to the firm is perfectly elastic.
D The trade union operates in a monopsonistic labour market.

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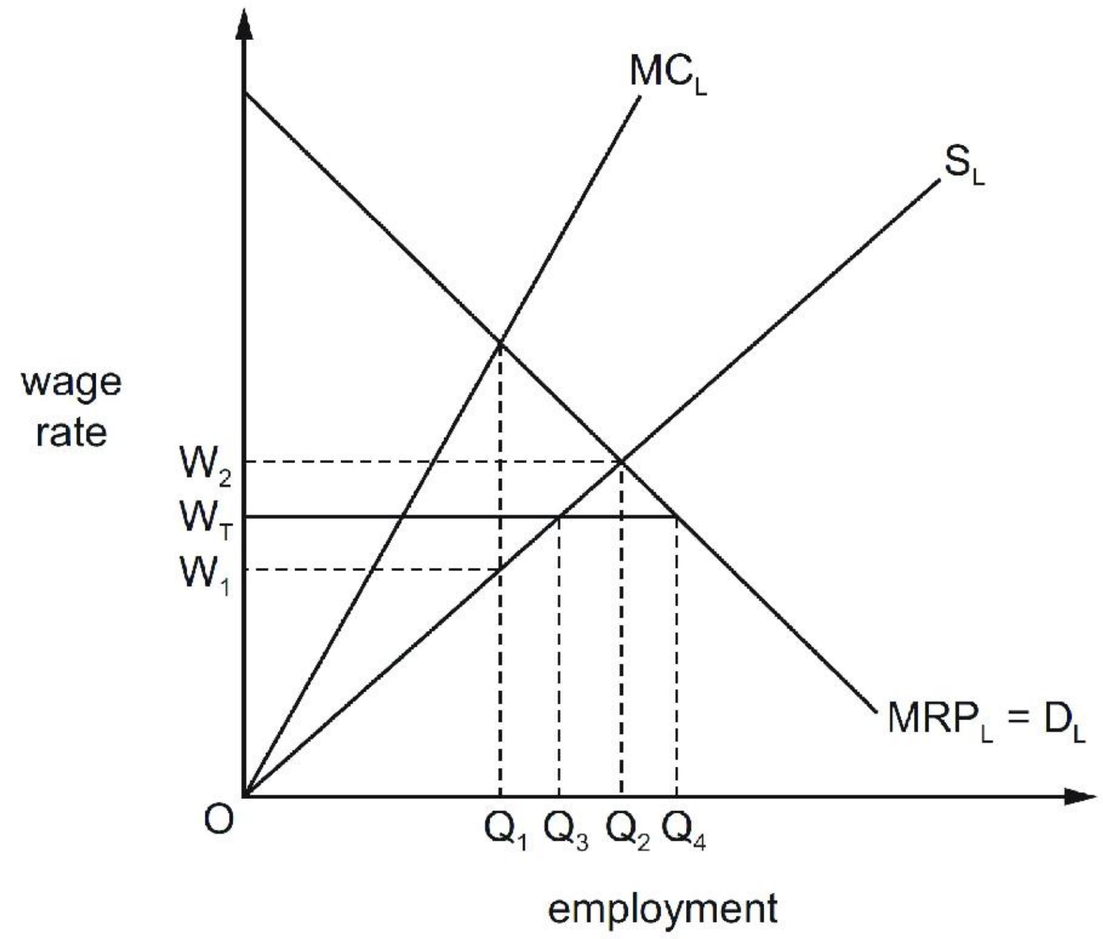
3. O/N 15/P31/Q6

The diagram shows what happens when the employees of a profit maximising monopsonist employer form a trade union and successfully negotiate a wage rate of OWT.



What is the effect of the new wage rate on employment?

A It falls from OQ_2 to OQ_1.

B It falls from OQ_6 to OQ_3.

C It rises from OQ_1 to OQ_3.

D It rises from OQ_1 to OQ_4.

4. M/J 14/P32/Q6

In 2004 union officials and businessmen in Argentina agreed to increase the minimum wage from 350 to 450 pesos.
In which circumstances would such a rise increase employment?

A Investment increases at a more rapid rate than consumption.

B Labour and product markets are competitive.

C The higher wage rate produces a proportionately greater rise in labour productivity.

D The minimum wage is set above the equilibrium level.

5. O/N 14/P32/Q7

A firm's workers join a trade union which negotiates an increase in the workers' wage rate.The increase in the wage rate results in an increase in the number employed by the firm.
What could explain this?

A The demand for the firm's product is price-elastic.

B The firm is a monopsonist within its local labour market.

C The firm operates in a perfectly competitive labour market.

D There is a high degree of substitutability between capital and labour.

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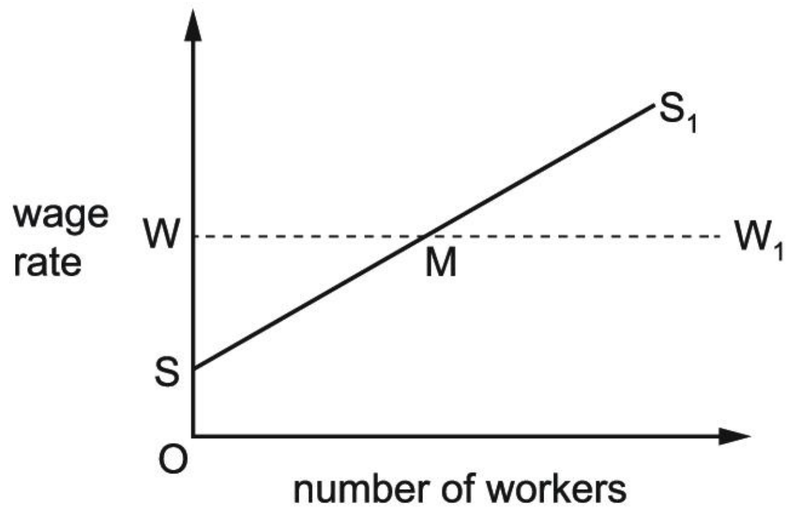
6. O/N 14/P33/Q6

The curve SS_1 in the diagram is the supply of labour curve facing a firm before the unionisation of its workforce.



The union negotiates a wage equal to W.
What does the labour supply curve now become?

A MS_1
B SMW_1
C WW_1
D WMS_1

7. M/J 13/P31/Q1

The introduction of equal pay legislation in a country increases the wages of female workers.
What will be the most likely effect of this increase?

A a reduction of the rate of female unemployment
B a reduction in the wages of male workers
C an expansion in the supply of female workers
D substitution of male workers by female workers

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Answers Section

1. A

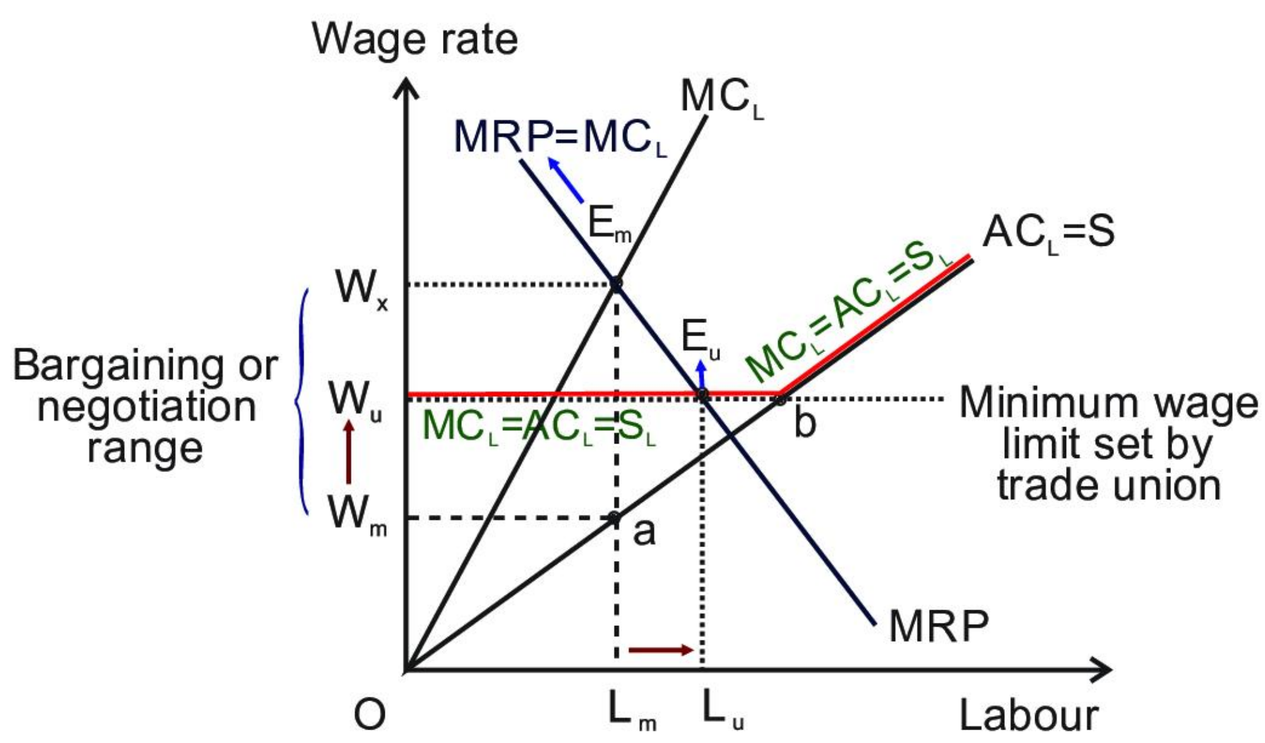
At minimum wage OW, firm will be wage taker and therefore at this wage rate :

$$MFC_L = AFC_L = S_L$$

Hence, profit maximising units of labour will be OM.

2. D

It is possible to increase both number of people employed and wage rate by trade union only if labour productivity increases with a greater rate than cost of labour or trade union operates in a monopsony market.



As the trade union increased wage from W_m to W_u and labor employed increased from L_m to L_u.

3. C

At minimum wage OW_T, firm will be wage taker and therefore at this wage rate :

$$MC_L = AC_L = S_L$$

Hence, profit maximising employment will be OQ_3.

4. C

It cannot be accurately predicted or forecasted whether the conditions present in option A would increase employment in Argentina if the minimum wage increases. If labor and product markets are competitive then the imposition of minimum wage would reduce employment, since higher labor costs would force firms to go out of business causing total employment to fall in the country. If labor productivity increases more proportionately, then more productive labor means more output for firms or in this case this will help to lower unit costs. With lower unit costs firms will be able to hire more workers so employment in Argentina will increase. If the minimum wage is set above equilibrium level, then there will be oversupply of labor in the market giving rise to higher unemployment.

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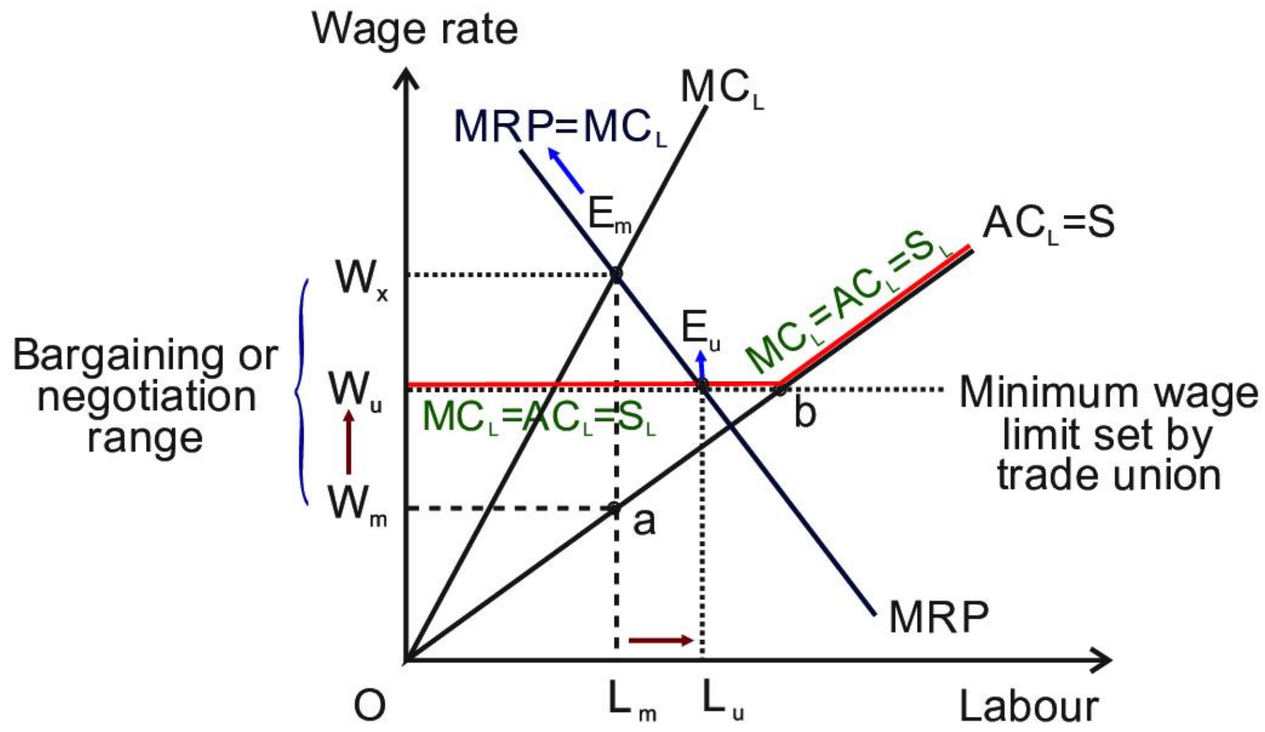
5. B

It is possible to increase both number of people employed and wage rate by trade union only if labour productivity increases with a greater rate than cost of labour or trade union operates in a monopsony market.



As the trade union increased wage from W_m to W_u and labor employed increased from L_m to L_u.

6. D

Supply curve before trade union is SS_1. A minimum wage set by trade union will change the supply to WMS_1 because no worker will accept a wage rate lower than W.

7. C

According to law of supply, an increase in wages of female workers will cause an expansion in the supply of female workers.

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11.8 Strength of trade union

1. M/J 15/P33/Q5
In which situation is it likely that the demand for labour would be inelastic?

A Labour and capital are close substitutes.

B Labour costs are only a small proportion of total costs.

C Demand for the final product that the labour produces is elastic.

D A large quantity of unemployed labour is available in the economy.

2. O/N 14/P14/Q7
The workers in a firm have not previously belonged to a trade union but now join one.
In which circumstance is this most likely to raise their wages?

A Capital is highly substitutable for labour.

B Labour costs constitute a large fraction of the firm's costs.

C The demand for the firm's product is price-inelastic.

D The firm operates in a perfectly competitive labour market.

3. M/J 15/P31/Q6, M/J 14/P31/Q6, O/N 12/P33/Q6
A trade union seeks to increase the wages a firm pays to its workers while at the same time preserving jobs.
What will strengthen the union's negotiating position?

A Capital and labour are close substitutes.

B The demand for the good produced by the firm is price elastic.

C The supply of labour to the firm is perfectly elastic.

D The trade union operates in a monopolistic labour market.

4. M/J 10/P32/Q5
A firm's workers join a trade union which negotiates an increase in the workers' wage rate.
The increase in the wage rate results in an increase in the number employed by the firm.
What could explain this?

A The demand for the firm's product is price-elastic.

B The firm is a monopsonist within its local labour market.

C The firm operates in a perfectly competitive labour market.

D There is a high degree of substitutability between capital and labour.

5. O/N 08/P3/Q6
In which circumstances is a trade union most likely to be successful in raising wage rates?

A The demand for the good produced is price-elastic.

B The industry faces substantial foreign competition.

C The industry's cost structure is capital-intensive.

D The workers are unskilled.

6. O/N 05/P3/Q7, O/N 00
A trade union seeks to increase the wages that a firm pays to its workers while at the same time preserving jobs.
What will strengthen the union's negotiating position?

A Capital and labour are perfect substitutes.

B The firm operates in a competitive market.

C The demand for the good produced by the firm is price-inelastic.

D The supply of labour to the firm is perfectly elastic.

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7. M/J 05/P3/Q5

When would a trade union be most likely to secure a wage rise for its members?

A when labour costs are a small proportion of total costs

B when the demand for the product is price-elastic

C when there are a large number of small producers

D when the supply of labour is elastic

8. M/J 02/P3/Q7

The workers in a firm have not previously belonged to a trade union but now join one.
In which circumstance is this most likely to raise their wages?

A Capital is highly substitutable for labour.

B Labour costs constitute a large fraction of the firm's costs.

C The demand for the firm's product is price-elastic.

D The firm has enjoyed monopsony power in the market for its labour.

9. O/N 01/P3

In which of the following situation is it likely that the demand for labour would be inelastic?

A Labour and capital are close substitutes.

B Labour costs are only a small proportion of total costs.

C Demand for the final product which the labour produces is elastic.

D A large quantity of unemployed labour is available in the economy.

10. O/N 95/P3

The demand for a factor of production will be more price-elastic.

A the larger the proportion of the cost of this factor in total costs.

B the more inelastic is the price elasticity of demand for the final product.

C the more inelastic is the supply of jointly used factors.

D the smaller the technical possibilities of substituting another factor for this factor.

11. O/N 93/P3

In a country, the introduction of a minimum wage raised the wages of three million workers without having any noticeable effect on the level of employment.
Which of the following is a possible explanation for this?

A The elasticity of demand for low-wage workers is equal to unity.

B The elasticity of demand for the goods produced by low-wage workers is very high.

C The goods produced by low-wage workers do not have any close substitutes.

D Several alternative methods are available for producing the goods produced by low-wage workers.

12. M/J 91/P3

A firm has a fixed capital / labour ratio
If wages rise, redundancies are **least** likely to occur where

A the demand for firm's product is price inelastic.

B the marginal physical product of labour falls.

C the marginal cost of labour falls.

D capital can be substituted for labour.

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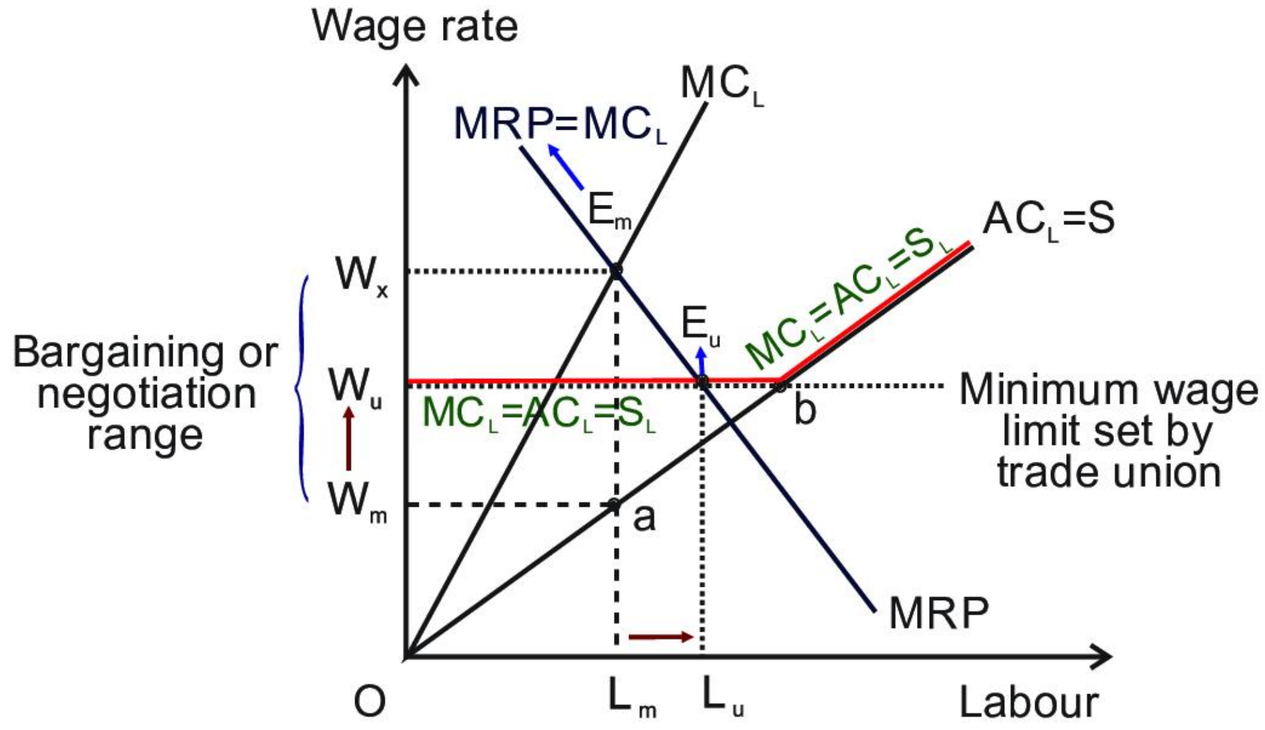
Answers Section

1. B
If labour cost is lower proportion of total cost, any increase in labour cost would not have a significant effect on total cost and therefore least effect on firm's demand for labour making it inelastic.

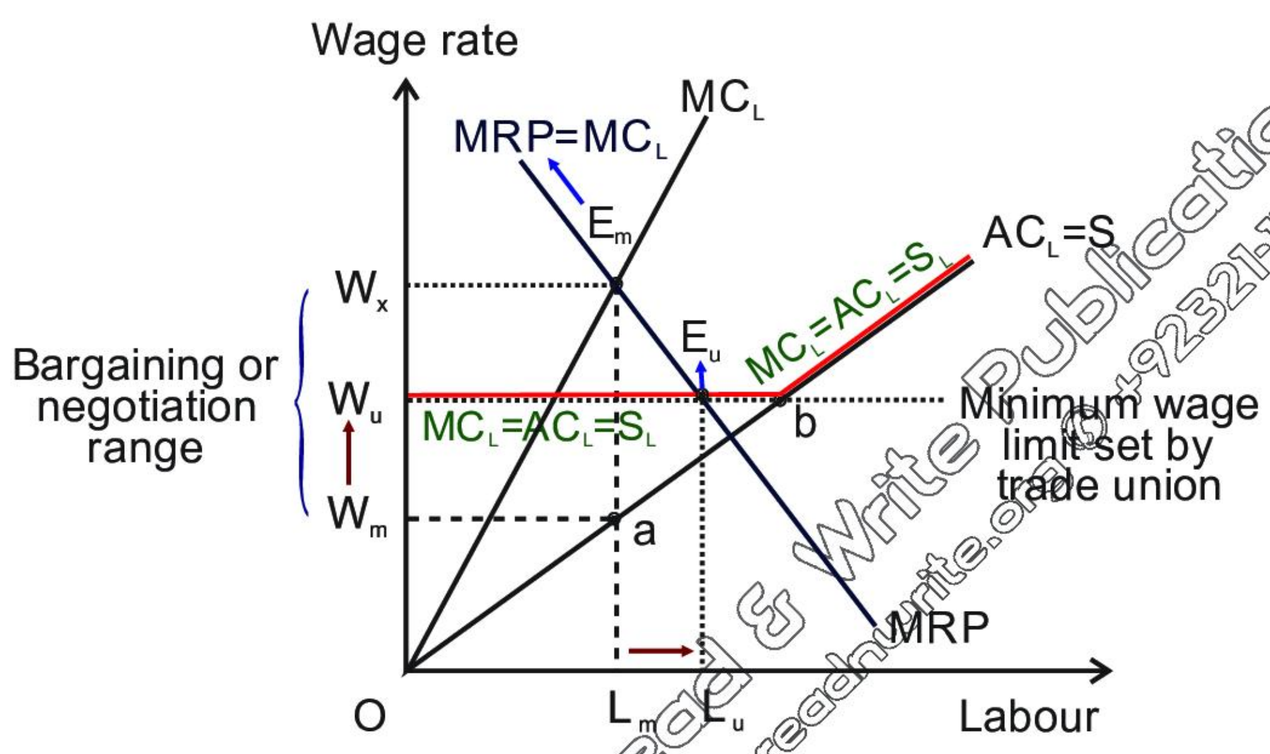
2. C
If the demand for the firm's product is price-inelastic, firm may pass any increase in labour cost to consumers in the form of increases price of the product and therefore least effect on firm's demand for labour. Hence, trade union will be in a better position to negotiate higher wages.

3. D
It is possible to increase both number of people employed and wage rate by trade union if labour productivity increases with a greater rate than cost of labour or trade union operates in a monopsony market.



As the trade union increased wage from W_m to W_u and labor employed increased from L_m to L_u.

4. B
The trade union is able to raise their wages in both monopsony and perfect competition. Among the options, only monopsony is present as the right choice which can be explained with the help of diagram below.



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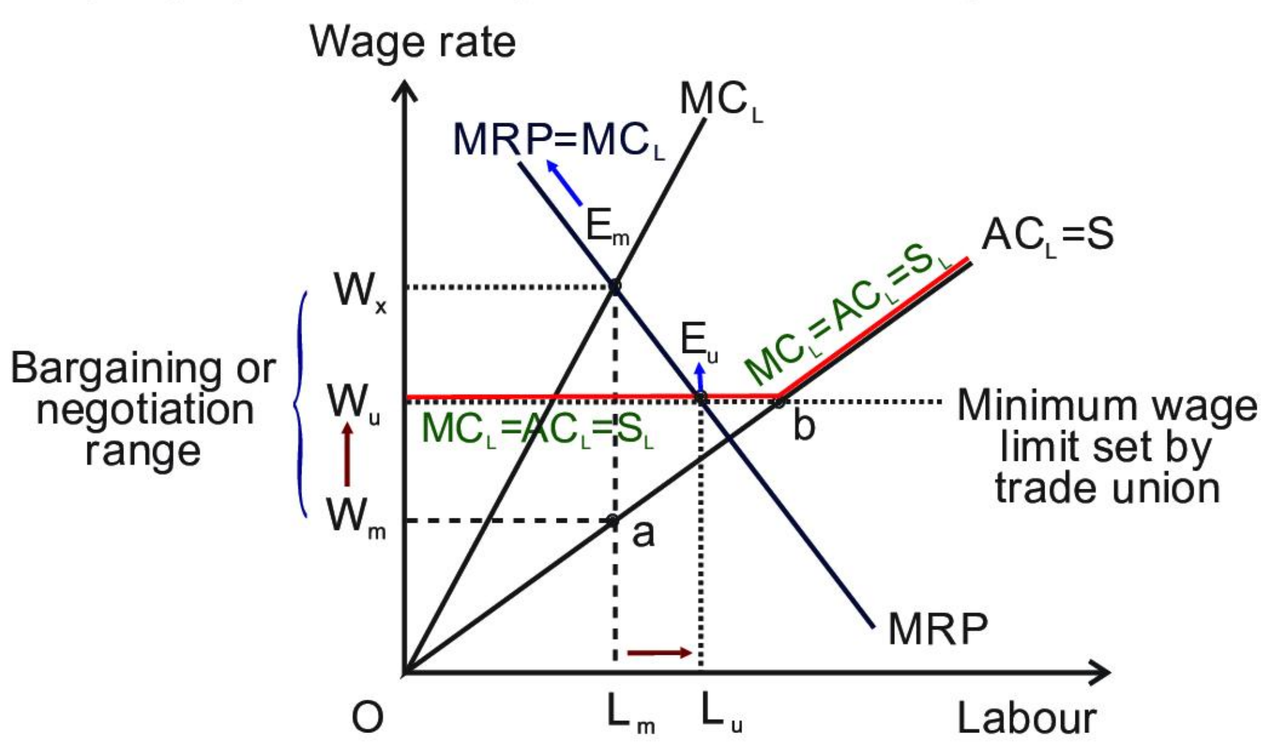
The interruption of trade union has caused the supply curve to be reshaped as shown by the bold line. The wage increases from W_m to W_u.

5. C
If industry's cost structure is capital intensive, labour cost is lower proportion of total cost, any increase in labour cost would not have a significant effect on total cost and therefore least effect on firm's demand for labour making it inelastic. Hence, trade union will be in a better position to negotiate higher wages.

6. C
An inelastic demand will increase the wages of workers to a greater extend and have very less significant effect on the employment of labour.

7. A
If labour cost is lower proportion or total cost, any increase in labour cost would not have a significant effect on total cost and therefore least effect on firm's demand for labour making it inelastic.

8. D
The trade union is able to raise their wages in both monopsony and perfect competition. Among the options, only monopsony is present as the right choice which can be explained with the help of diagram below.



The interruption of trade union has caused the supply curve to be reshaped as shown by the bold line. The wage increases from W_m to W_u.

9. B
If labour cost is lower proportion or total cost, any increase in labour cost would not have a significant effect on total cost and therefore least effect on firm's demand for labour making it inelastic.

10. A
The greater proportion of the cost of the factor in total cost, the greater the firm will be cautious before hiring another factor. Hence in this case the demand for the factor of production will be more price-elastic.

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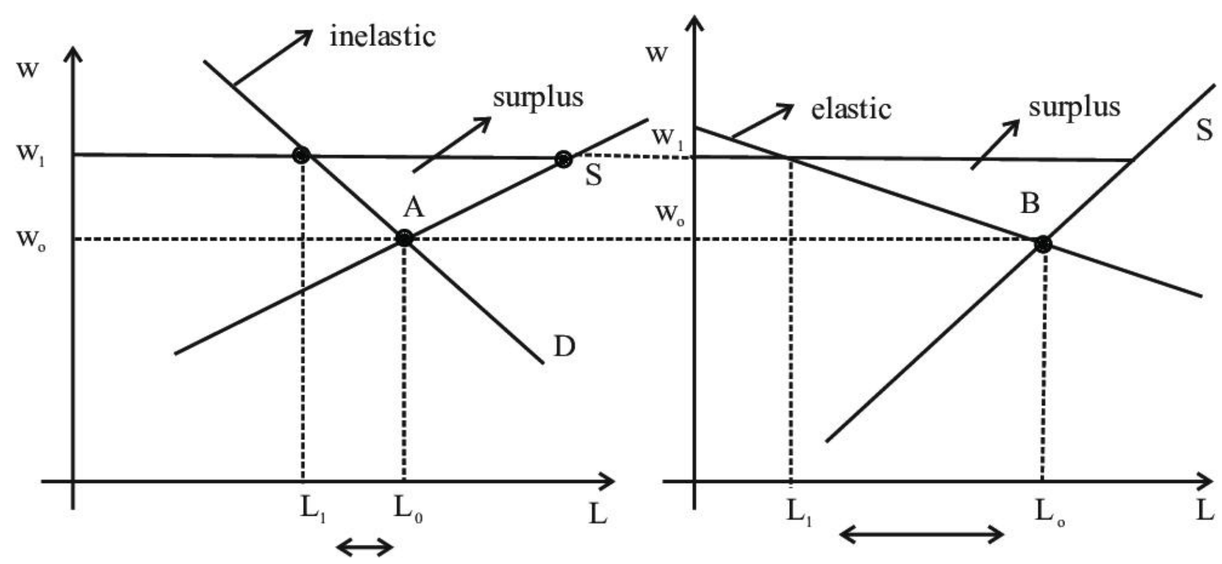
11. C

This can be explained through a diagram below.



The two diagrams above show the effect of minimum wage of W_1 which is greater than current wage of W_0. The current labour is L_0. When the demand for labour is inelastic, the effect on reduction of employment of labour a very lesser extent as compared to that of an elastic demand of labour. As seen through diagram 1, the new labour is L_1 and the effect on unemployment is much lesser as compared to that in diagram 2. Only goods which have no close substitutes have inelastic demand for labour. Therefore there is no significant effect on employment of such goods.

12. A

With inelastic demand for labour, an increase in wages will create least redundancies and demand for labour will be inelastic if demand for product is inelastic.

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11.9 Wage differentials

1. M/J 15/P32/Q15

The government introduces a minimum wage above the equilibrium market wage rate.
How will this affect low-paid workers?

A All those initially in employment will receive the new guaranteed minimum wage.

B Fewer of those not already in employment will enter the labour force.

C There will be an increase in the number of low-paid workers in employment.

D Some low-paid workers will lose their job.

2. O/N 14/P32/Q16

The introduction of a minimum hourly wage for all workers over 21 years of age is expected to increase the average wages of these workers.
What will be the likely effect on workers under 21?

	unemployment for under 21s	average wages for under 21s
A	falls	fall
B	falls	rise
C	rises	fall
D	rises	rise

3. O/N 14/P33/Q4

Night shift workers are often paid more than day shift workers performing the same tasks.
What could explain this observed wage differential?

A higher productivity of day shift workers

B non-pecuniary disadvantages of working night shifts

C the absence of competition between the two groups of workers

D the inclusion of economic rent in the wages paid to night shift workers

4. M/J 12/P33/Q7, M/J 12/P31/Q7

There is an increase in the supply of female labour.
What will be the likely effect on male and female wages?

	male wages	**female wages**
A	decrease	Decrease
B	decrease	Increase
C	increase	Decrease
D	increase	increase

5. O/N 14/P14/Q5, O/N 09/P32/Q6

What is an example of a wage differential that compensates for the disadvantages associated with particular jobs?

A male workers earning more than female workers in the same job

B the tendency for wage rates negotiated by trade unions to exceed those for non-unionised labour

C labourer on off-shore oil rigs earning more than those employed on-shore

D government office workers being paid more than private sector office workers

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6. M/J 06,M/J 11/P32/Q5

The table shows the main characteristics of employment in two occupations.

	occupation A	occupation B
average annual wage	$ 100 000	$ 60 000
number of weeks annual leave	5 weeks	10 weeks
average length of working week	48 hours	44 hours
job security	low	high
length of training course to obtain job qualification	1 year	2 years

What can be deduced from the table?

A Those employed in occupation B attach greater importance to job security.

B Those employed in occupation A attach less importance to leisure activities.

C There will be more competition for places on training courses to enter occupation A than occupation B.

D Occupation B has greater non-pecuniary advantages than occupation A.

7. M/J 96/P3

What would most likely lead to an increase in the wages of bricklayers?

A an increase in the price of bricks

B a reduction in interest rates on loans for house purchase

C a reduction in the apprenticeship period for bricklayers

D the withdrawal of tax relief on interest payments on loans for house purchase

8. O/N 94/P3

In industry X, the industry's demand for female labour is less at all wage rates than its demand for male labour of equal qualifications. The female labour which cannot obtain employment in X enters industry Y, in which there is no discrimination?

What is the effect on wages of X's policy of discrimination against women compared to a situation of no discrimination?

A men's wages are higher in both X and Y.

B men's wages are lower in X and higher in Y.

C men's wages are higher in X and lower in Y.

D women's wages are lower in X and higher in Y.

9. O/N 92, M/J 05/P3/Q5

Wages in industry X are significantly higher than in industry Y.

What could explain this difference?

A Workers in industry Y are highly mobile.

B Trade union organisation in industry Y is relatively strong.

C Industries X and Y compete with each other for workers.

D There are non-pecuniary advantages to working in industry Y.

10. M/J 90, M/J 93,M/J 03/P3/Q6, O/N 07/P3/Q6

The introduction of equal pay legislation in a country increases the wages of female workers.

What will be the most likely effect of this increase?

A a reduction of the rate of female unemployment

B a reduction in the wages of male workers

C an expansion in the supply of female workers

D substitution of female workers for male workers

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11. O/N 14/P32/Q4

A worker is considering accepting a job she has been offered. She draws up a list of the annual monetary values she places on the advantages and disadvantages of the job.

advantages and disadvantages of the job	value ($)
income	750
dangerous working conditions	500
long working hours	250
high prestige of the job	200
cost of providing own uniform	150
opportunity for travel	100
short holidays	50

What can be concluded from the table?

A She values the pecuniary advantages more highly than the non-pecuniary advantages.

B She would take the job even if it had none of the non-pecuniary advantages.

C The job has no pecuniary disadvantages.

D The non-pecuniary advantages outweigh the non-pecuniary disadvantages.

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Answers Section

1. D
A minimum wage above the equilibrium market wage rate will benefit low-paid workers in the form of better pay but will also create disadvantage of loss of jobs to some workers due to surplus created in the market.

2. B
If the minimum wage for workers over 21 is likely to rise then firms will hire more workers who are under 21. This will reduce unemployment for those who are under 21. Moreover, firms will fiercely compete for workers under 21 and with higher demand, the workers under 21 will also benefit from higher wages. So option B is correct.

3. B
Night shift is unsocial work hours and will have non-pecuniary disadvantages, therefore, less supply of labour causing higher wage rate.

4. A
An increase in the supply of female labour will cause a reduction in wages of female labour. Male labour will be substitute of female labour therefore demand for male labour will fall and so will be wages of male labour.

5. C
Labourer which work off shore have to set up their personal engagement aside and work in more difficult conditions as compared to those working on shore. Hence supply of such workers is lesser and hence they earn greater wage as compared to those working on shore.

6. D
As seen from the table, occupation B workers receive lower wages than those in occupation A despite higher job security. Moreover, length of training course for B is greater than that of A which means its supply is lesser than A. However, it contradicts the fact that B is receiving lower wage. Therefore, occupation B will be receiving greater parks to compensate for the lower wages.

7. B
A reduction in interest rates on loans for house purchase will increase the demand for house purchase. This is turn, will increase the demand for labour which will increase the wages of labour.

8. C
In X, as demand for females is lesser, the wage rates of men will be greater than that of females at all levels. By entering in industry Y, females obtain same wage rates as that of males. The males will receive same wages in Y as compared to females. This wage will be lesser than males of X industry because females received a lower wage there. Hence men's wages are higher in X and lower in Y.

9. D
According to option A, only information about workers in industry Y is given. It provides no conclusive information for industry X for the comparison between two industries. If trade union of is relatively strong, then wages of workers in Y should be higher as opposed to the given statement. If there is competition among workers, then the wages for both industries should be equal which is again not the case. Hence non pecuniary (fringe) benefits in industry Y is the right choice. If workers in industry Y are compensated with free accommodation, free transport, free medical care etc. then will be ready to work at lower wages as is the case in the question statement.

10. C
With the increases the wages of female workers, according to law of supply, there will be an extension in the supply of female workers.

11. A
Pecuniary (income) advantages = $750
Non-pecuniary advantages (High prestige of the job) = 200+100 = $300
Pecuniary and non-pecuniary advantages = 750+300 = $1050
Non-pecuniary disadvantages (dnagerous working conditions, long working hours,cost of providing own uniform, short holidays =500+250+150+50= $ 950

Henceonly option A justifies the given data and therefore is correct.

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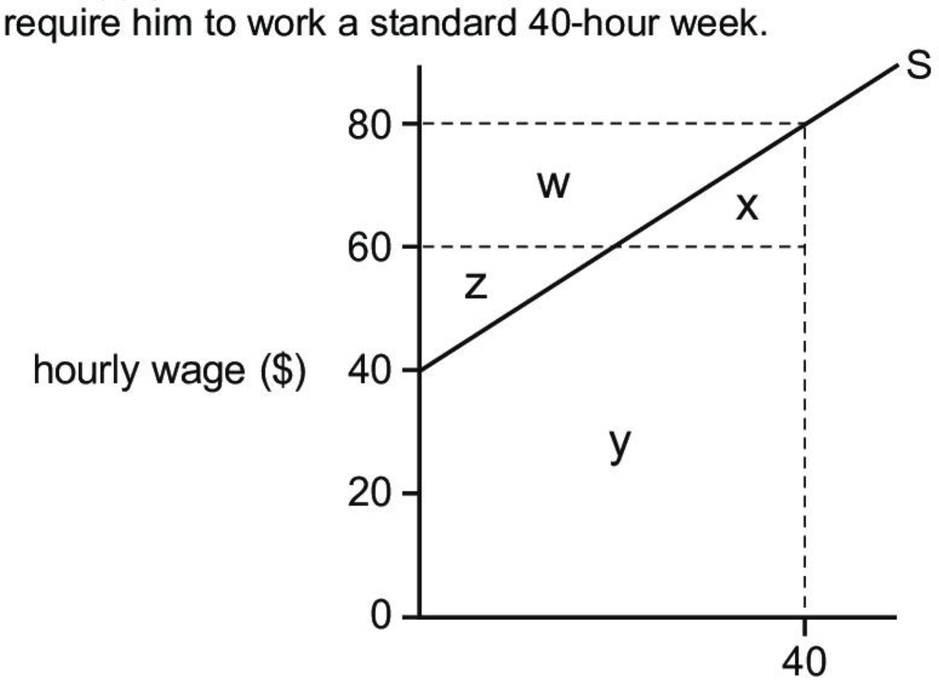
11.10 Economic rent and transfer earnings

1. M/J 15/P32/Q6, M/J 07/P32/Q6

The diagram shows an individual's supply of labour curve.
He is offered a job which would require him to work a standard 40-hour week.

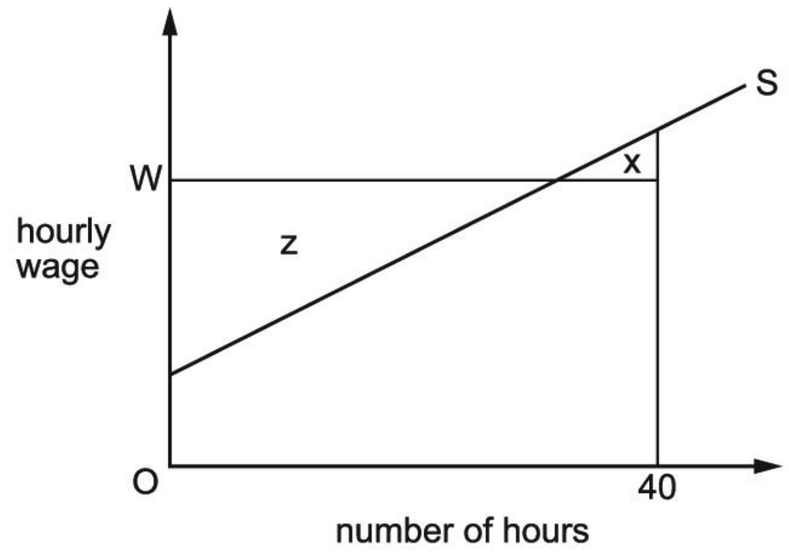


Which area measures the lowest amount he would have to be paid per week to get him to accept this job offer?

A w + z **B** x + y **C** x + y - z **D** w + x + z + y

2. O/N 14/P32/Q6

The diagram shows an individual worker's supply curve of labour.



The hourly wage is W and the worker is required to work a standard 40-hour week.
Which area measures the net improvement in the worker's welfare if he were allowed to choose the number of hours he wished to work per week?

A x **B** z – x **C** z + x **D** z

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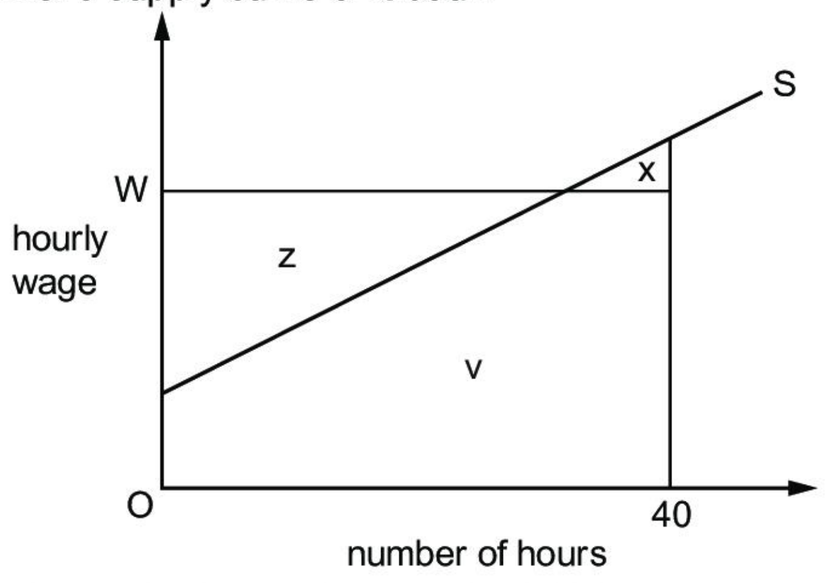
3. M/J 14/P32/Q8

The diagram shows an individual worker's supply curve of labour.

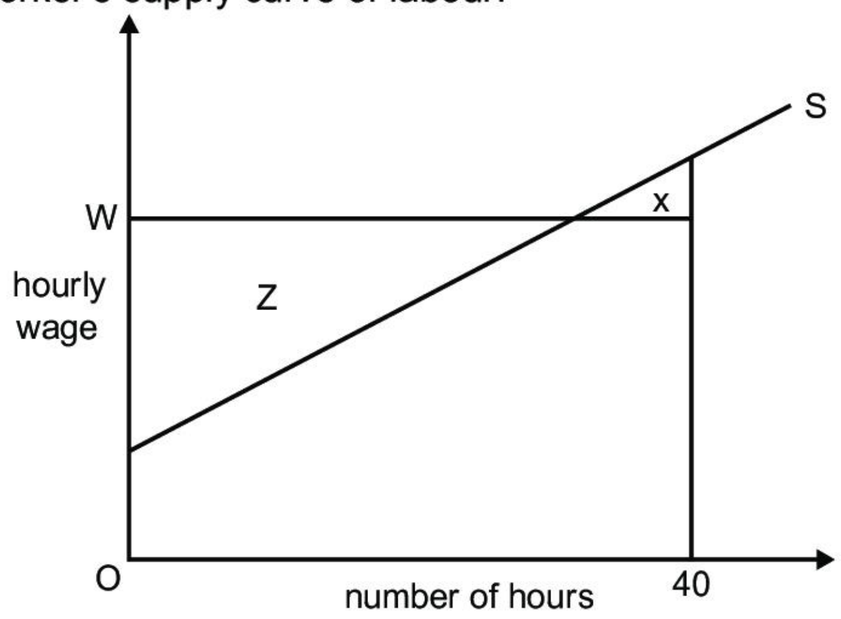


The hourly wage is W and the worker is required to work a standard 40-hour week.
Which area measures the minimum amount per week he would be willing to accept?

A v **B** v + x **C** v – x **D** z – x

4. O/N 13/P31/Q5, O/N 04/P32/Q8

The diagram shows an individual worker's supply curve of labour.

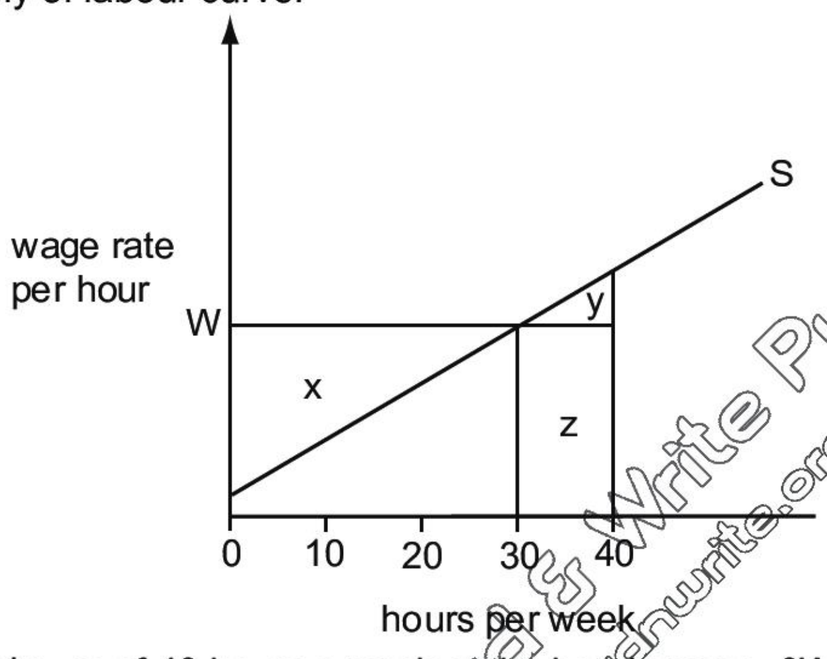


The hourly wage is OW and the worker is required to work a standard 40-hour week.
Which area measures the difference between the total amount the worker is paid per week and the minimum amount he would be willing to accept?

A x **B** z **C** x + z **D** z – x

5. O/N 10/P32/Q7, O/N 14/P33/Q7

The diagram shows a worker's supply of labour curve.



The worker is required to work a minimum of 40 hours a week at the hourly wage, 0W.
Which area measures the economic rent obtained by the worker?

A x – y **B** x + y **C** y – x **D** y + z

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6. M/J 15/P33/Q6

An actor is paid $100 000 a year. The next best paid job he could get would be as a lecturer. He estimates that he currently earns an economic rent of $40 000. What wage could he earn as a lecturer and what are his transfer earnings?

	wage as a lecturer ($)	transfer earnings ($)
A	40 000	60 000
B	40 000	140 000
C	60 000	60 000
D	60 000	140 000

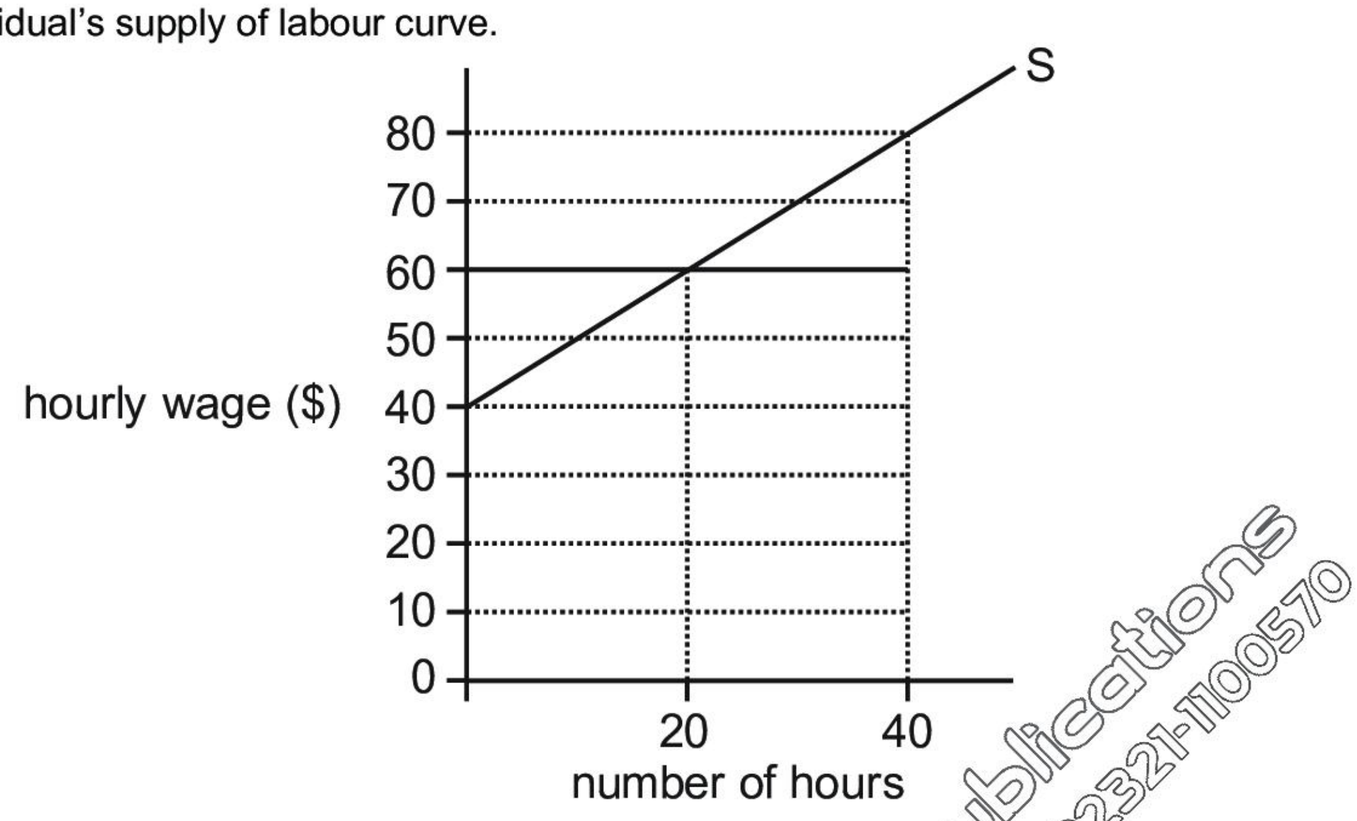
7. M/J 18/P31/Q15, M/J 13/P32/Q6, O/N 11/P32/Q5

A fashion model/actor is paid $100 000 a year.
The next best paid job she could get is as a teacher at $60 000 a year.
What are her transfer earnings and her economic rent?

	transfer earnings $	economic rent $
A	60 000	zero
B	60 000	40 000
C	100 000	zero
D	100 000	40 000

8. O/N 13/P33/Q6

The diagram shows an individual's supply of labour curve.



The hourly wage is $60 and the worker is compelled to work a 40-hour week.
What is the value of the worker's economic rent?

A $0 **B** $200 **C** $200 **D** $2400

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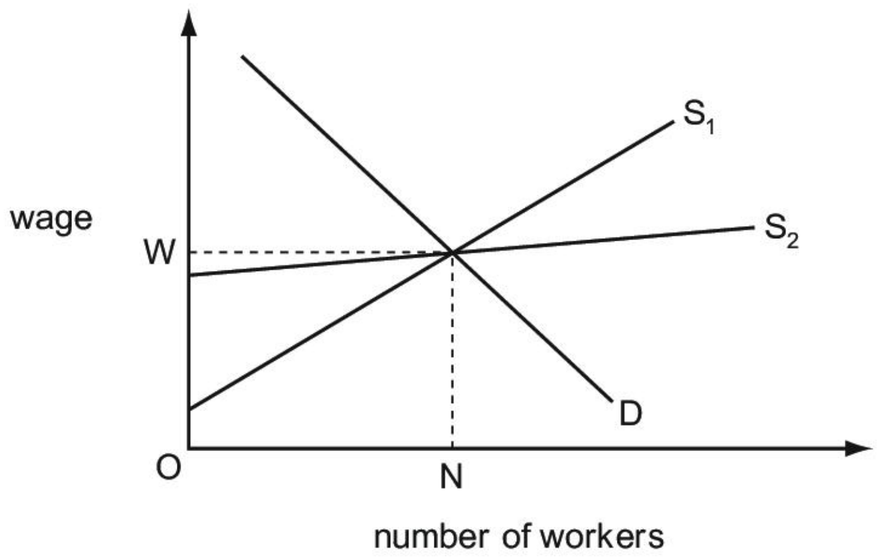
9. O/N 17/P32/Q18, O/N 12/P31/Q7

The diagram represents the market for labour.

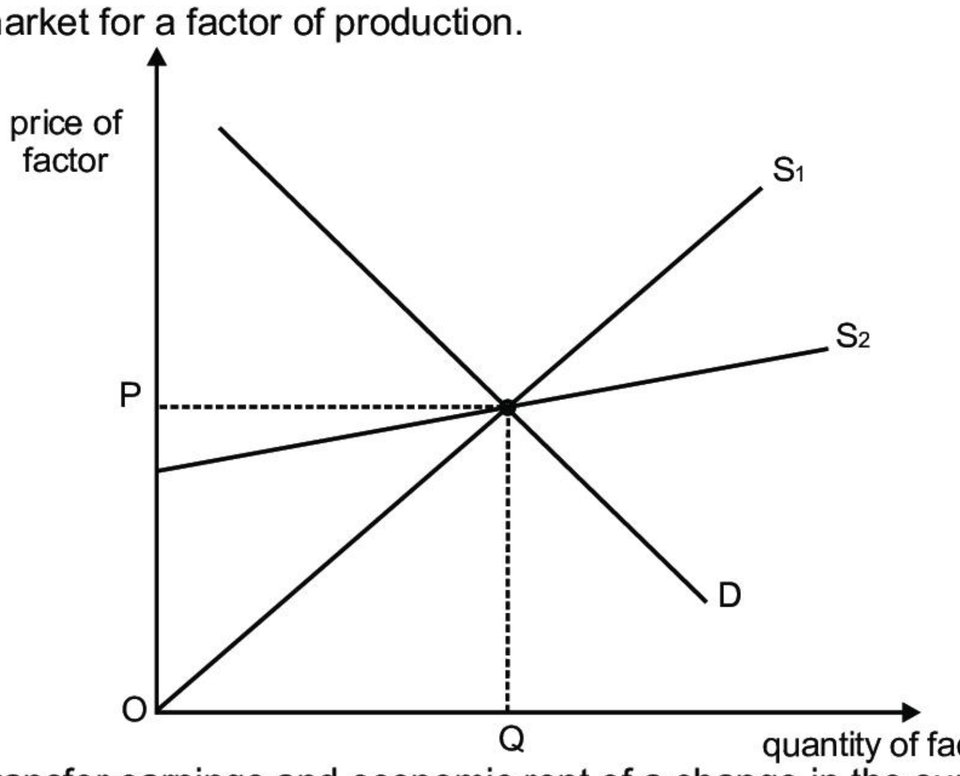


What would be the effect on transfer earnings and economic rent of a change in the supply curve from S_1 to S_2?

	transfer earnings	economic rent
A	fall	falls
B	fall	rises
C	rise	rises
D	rise	falls

10. M/J 92,O/N 93/P3/Q18

The diagram represents the market for a factor of production.



What would be the effect on transfer earnings and economic rent of a change in the supply curve from S_1 to S_2?

	Transfer earnings	Economic rent
A	fall	falls
B	fall	rises
C	no change	no change
D	rise	falls

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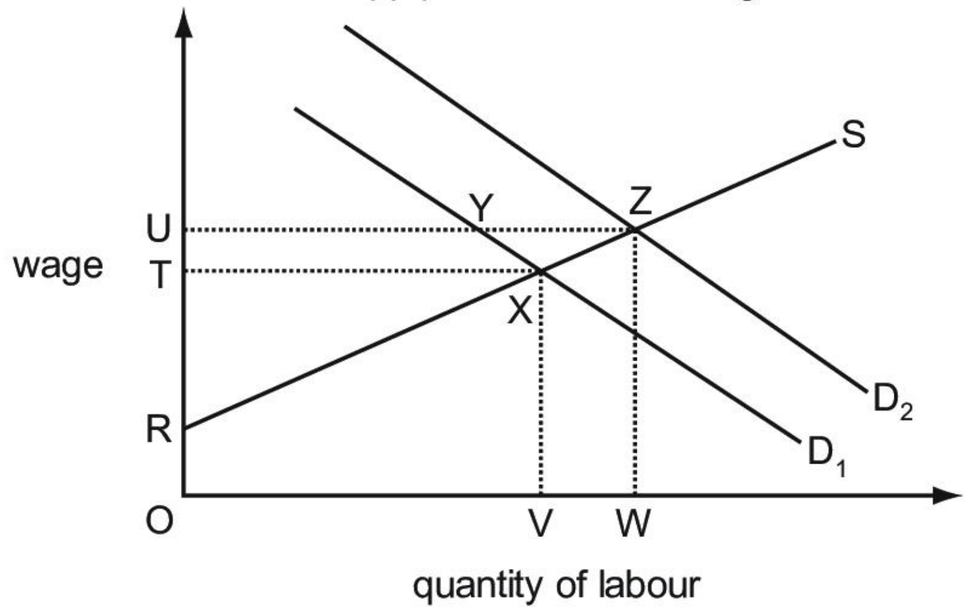
11. M/J 18/P32/Q16, O/N 12/P32/Q6

In the diagram D_1 and S are the initial demand and supply curves for building workers.

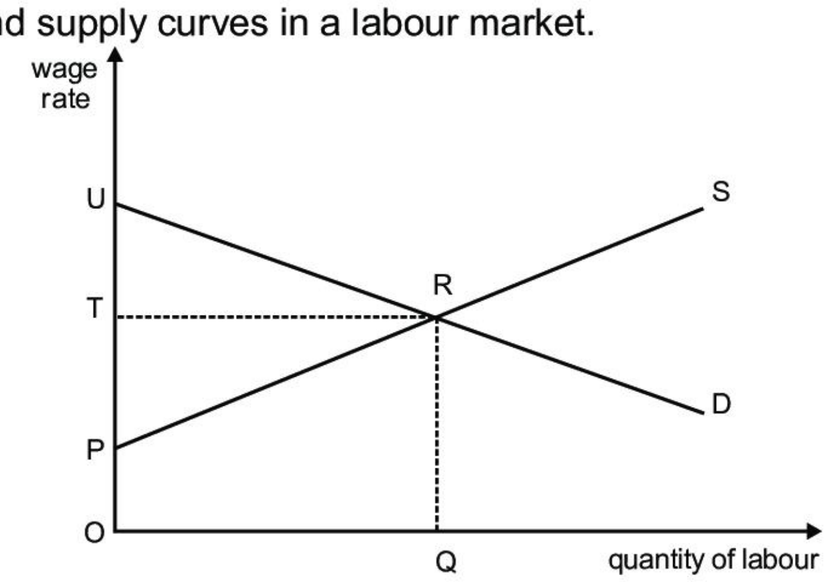


If the demand for building workers increases to D_2 by how much does the economic rent earned by building workers rise?

A RZU **B** TXZU **C** VWZX **D** XZY

12. M/J 99/P3

The diagram shows the demand and supply curves in a labour market.



Which areas measure economic rent and transfer earnings, when the market is in equilibrium.

	Economic rent	Transfer earnings
A	PRU	OQRP
B	PTR	OQRP
C	PTR	UTR
D	PRU	UTR

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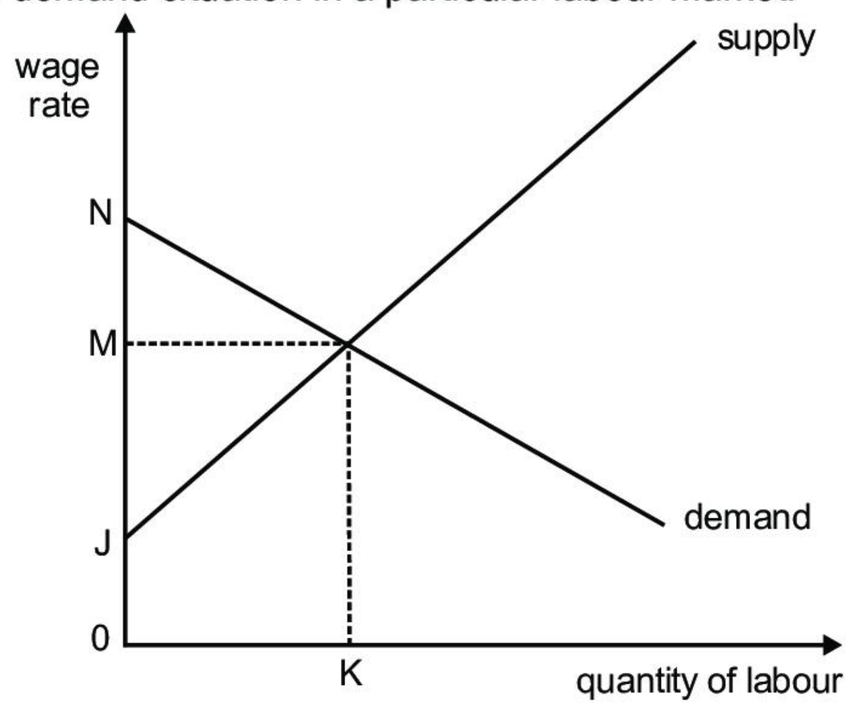
13. M/J 17/P32/Q17, O/N 95/P3

The diagram shows the supply and demand situation in a particular labour market.



When the market is in equilibrium, which areas measure the economic rent and transfer earnings received by employees?

	Economic rent	Transfer earnings
A	JLN	OKLJ
B	JML	OKLJ
C	NML	OKLM
D	OKLM	NML

14. M/J 95/P3

Under which conditions will the economic rent received for a given type of labour decrease?

A the demand curve for that labour shifts to the right.

B the opportunities for training and mobility increase

C the skills possessed by such labourers become more specialized

D the supply curve for that labour becomes more inelastic

15. O/N 91/P3

What is defined as the payment made to a factor of production over and above that necessary to keep the factor in its present use?

A consumers surplus **B** economic rent **C** normal profit **D** opportunity cost

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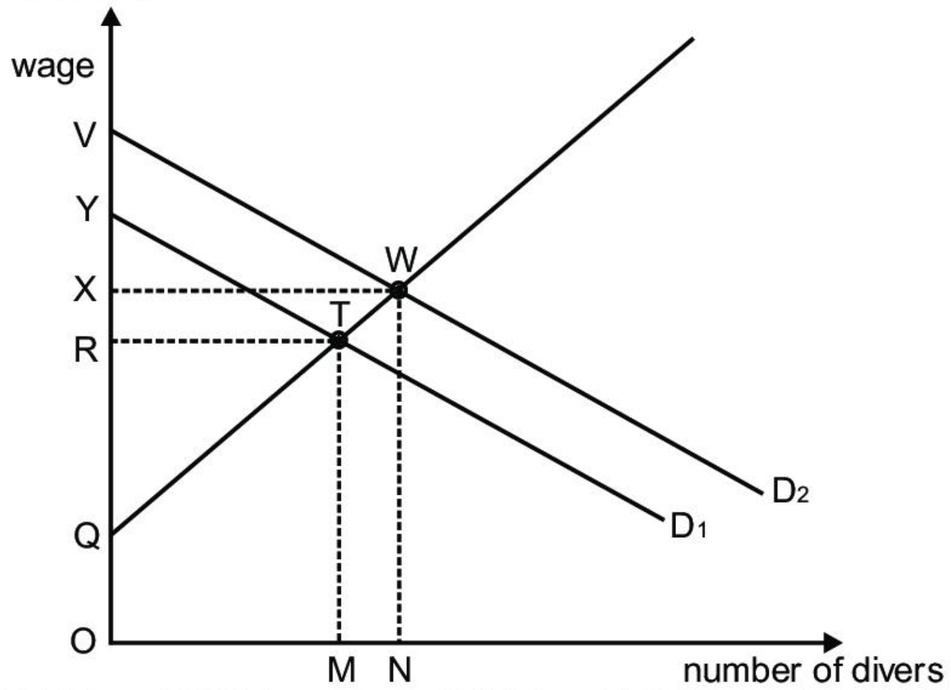
16. M/J 91/P3

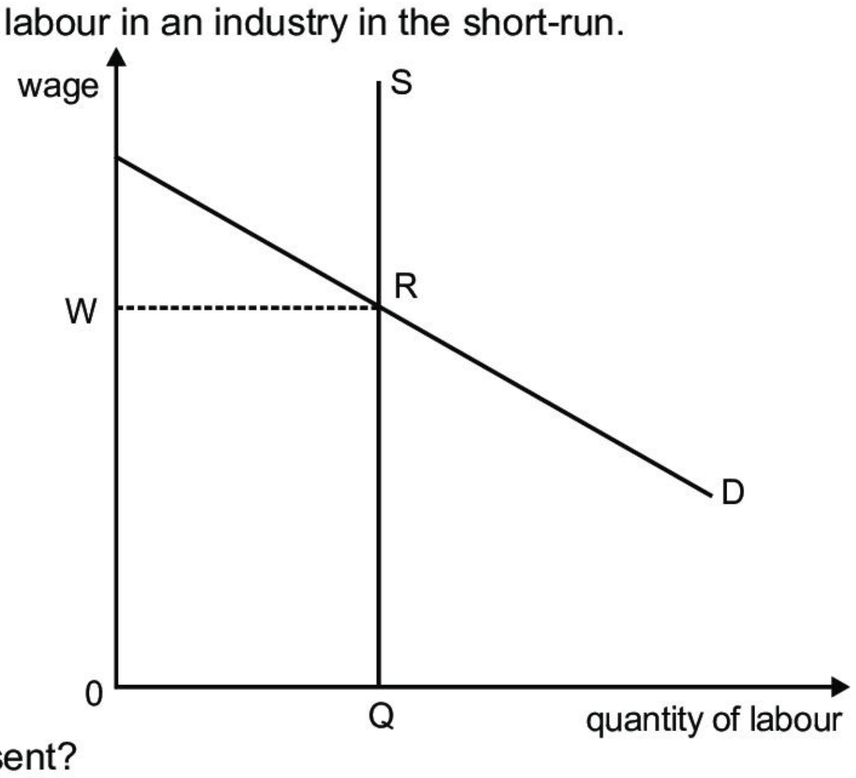
An increase in the world price of oil increases the demand for North Sea divers from D_1 to D_2 as shown in the diagram. The economic rent earned by such divers



A OQTM to OQWN **B** ORTM to OXWN **C** OYTM to OYWN **D** QRT to QXW

17. O/N 90/P3

The diagram shows the market for labour in an industry in the short-run.



What does the area OQRW represent?

A consumers surplus
B economic rent
C the opportunity cost of labour
D transfer earnings

18. M/J 90/P3

A fashion model is paid £50 000 a year. If the next paid job he could get is as a teacher at £15 000 a year, then

A his transfer earnings are £35 000 but there is no economic rent
B His transfer earnings are the same as his economic rent
C his transfer earnings are £35 000 and his economic rent is £ 15 000
D his economic rent is £35 000 and his transfer earnings £15 000

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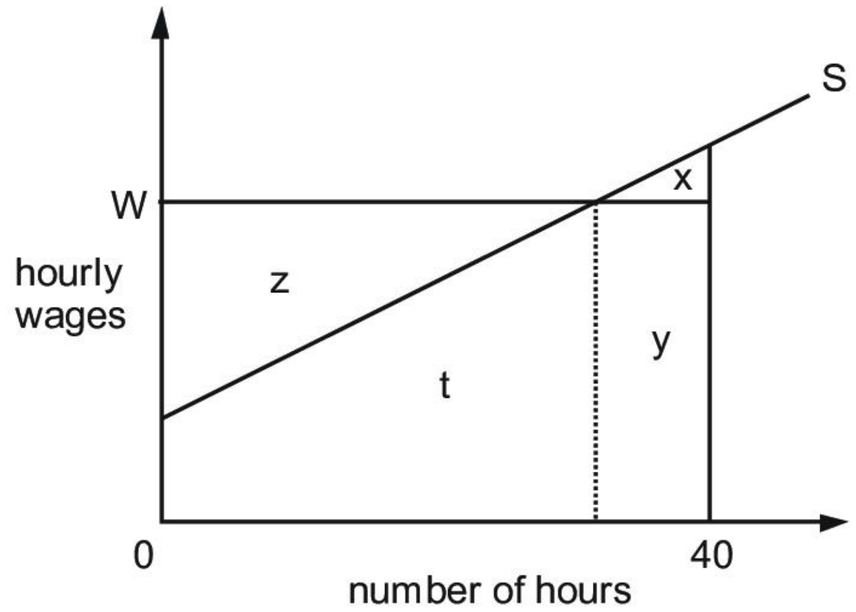
Answers Section

1. B

The questions asks for the transfer earnings which measures the lowest amount the individual would have to be paid per week. Transfer earrings is the area below supply curve upto 40 hours with wage of $80. According to diagram, this is the combined area of *x* and y.

2. A

The intersection of the wage rate and supply curve of labour determines the number of hours that a worker is willing to work for that wage rate. The worker would not want to supply any more labour beyond this point at wage rate W; however, since in this case the worker is supposed to work 40 hours a week, anything beyond this point is what the worker provides in labour unwillingly because he receives an increase in his current earnings by the area 'y' but his transfer earnings increase by 'x+y'.



Addition to current earnings = y
Addition to transfer earnings = x+y
Net loss of welfare of worker = (x+y) -y = x
Hence extra hours of labour reduce his welfare by the area x.

3. B

Current earning is the product of wage rate and total labour. Where as the minimum amount, workers will be willing to accept will be transfer earnings, i.e., area under supply of labour curve. Economic rent is the difference between current earnings and transfer earnings and it is the area between wage rate and supply of labour.

According to the diagram :

Current earnings = z + v
Transfer earnings = v + x

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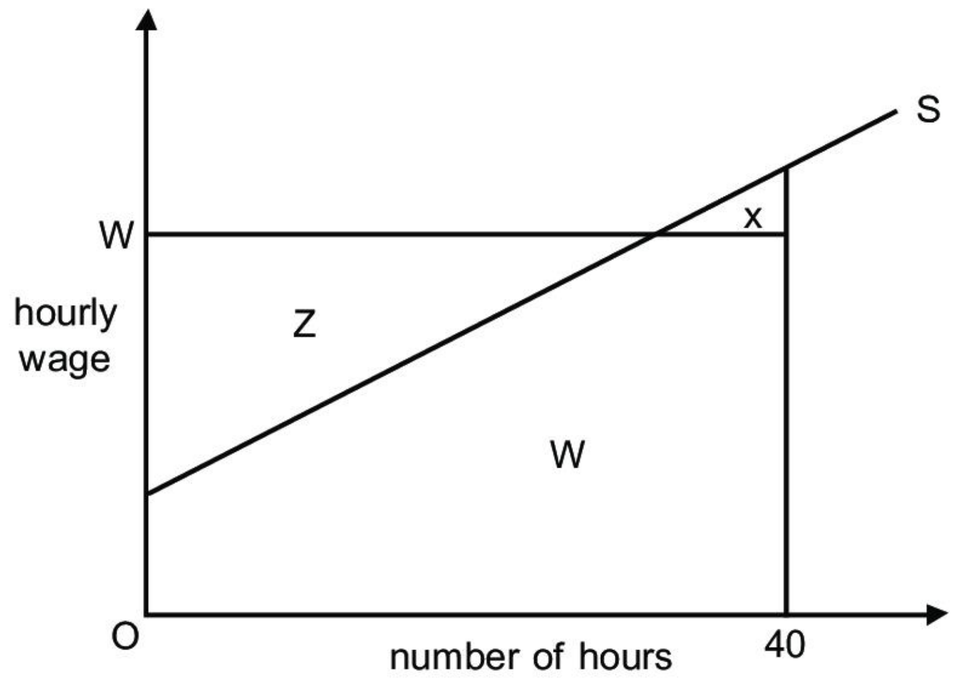
4. D

Current earning is the product of wage rate and total labour. Where as the minimum amount, workers will be willing to accept will be transfer earnings, i.e., area under supply of labour curve. Economic rent is the difference between current earnings and transfer earnings and it is the area between wage rate and supply of labour. According to the diagram below:

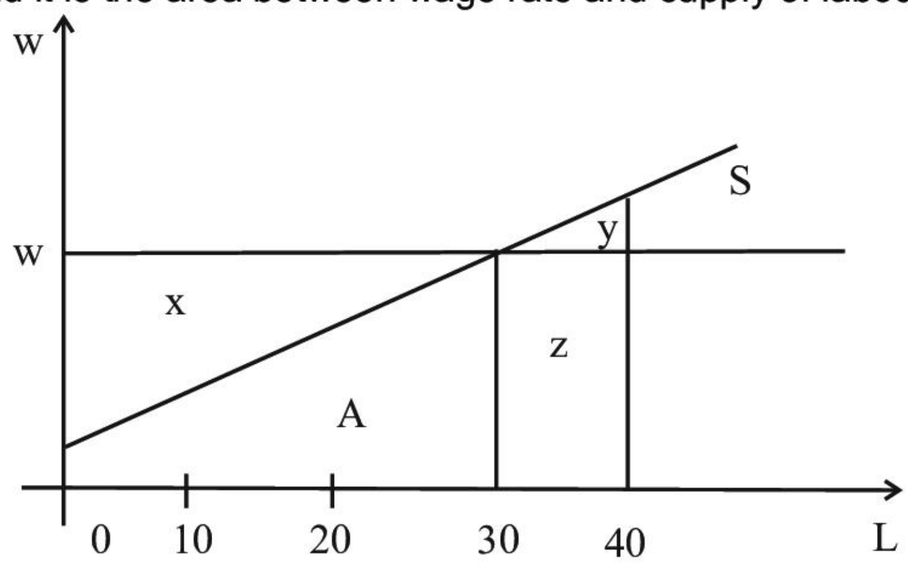


Current earnings = z + w
Transfer earnings = w + x
Economic rent = (z+w) - (w+x) = z - x

The difference will be Z-X.

5. A

Current earning is the product of wage rate and total labour. Where as the minimum amount, workers will be willing to accept will be transfer earnings, i.e., area under supply of labour curve. Economic rent is the difference between current earnings and transfer earnings and it is the area between wage rate and supply of labour.



According to diagram.
Current Earnings = X + A + Z
Transfer Earnings =– (A + Z + Y) = X – Y

6. C

Current earning is the product of wage rate and total labour. Economic rent is the difference between current earnings and transfer earnings.
According to the information given
Economic rent = Current earnings - transfer earnings
$40,000 = 100,000 - transfer earnings
Transfer earnings = 100,000 - 40,000 = $60,000
The minimum amount, workers will be willing to accept will be transfer earnings, therefore wages as a lecturer will be transfer earnings which are equal to $60,000.

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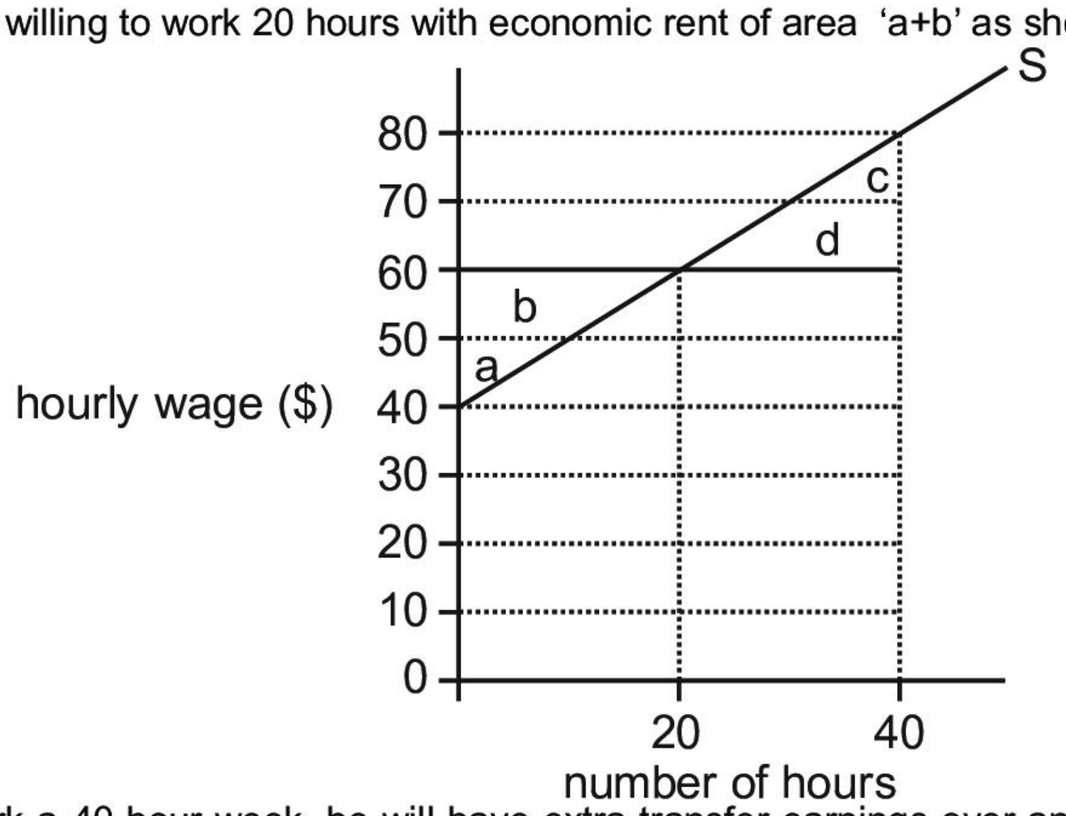
7. B

Current earning is the product of wage rate and total labour. Economic rent is the difference between current earnings and transfer earnings.The minimum amount, workers will be willing to accept will be transfer earnings, therefore earnings as a teacher will be transfer earnings which are equal to $60,000.

According to the information given
Economic rent = Current earnings - transfer earnings = 100,000 - 60,000 = $40,000

8. A

At wage rate $60, workers is willing to work 20 hours with economic rent of area 'a+b' as shown in the diagram below:



But if he is compelled to work a 40-hour week, he will have extra transfer earnings over and above his current earnings shown by the area 'c+d'. As it is evident from the diagram that :

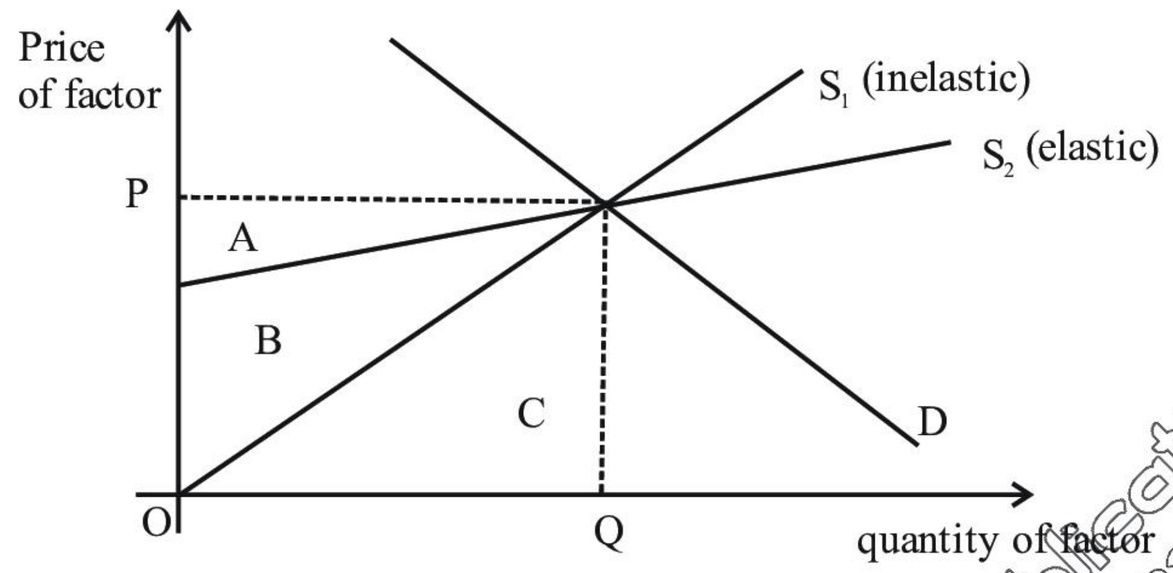
$$a + b = c + d$$

Therefore there will be zero economic rent.

9. D

With more elastic supply, there will be greater area below supply curve, hence transfer earnings increase. On the other hand, there will less area between wage rate and supply curve,therefore a reduction in economic rent.

10. D



Transfer earning is the area below supply curve up to given units factor of production. Economic rent is area above supply curve upto given price of factor of production When supply curve was S_1 (inelastic) the transfer earnings were area C whereas economic rent consisted of area A and B. When supply curve became S_2, (elastic) economic rent decreased to area A while transfer earrings were the area B and C. Hence transfer earrings rose and economic rent decreased.

11. B

As the graph shows, economic rent is the area above the supply curve but below the equilibrium wage rate. So in case of D_1 economic rent would be area above the line RX but below TX. After the demand curve shifts to D_2 the equilibrium wage rate is OU and quantity is OW. So economic rent is area above RZ but below UZ. So the difference is the increase in economic rent which is area TXZU.

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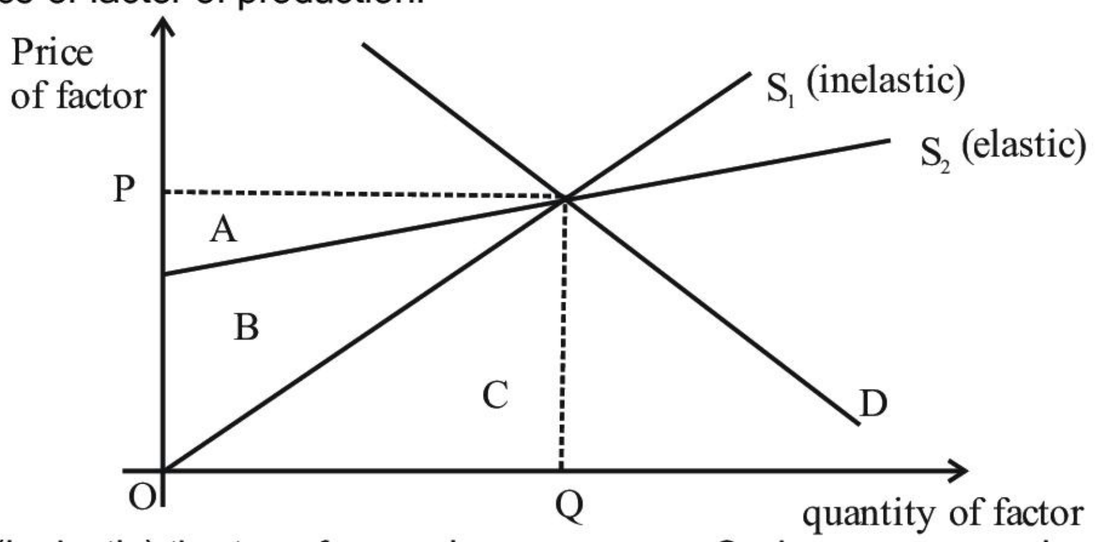
12. B
Transfer earning are the area below supply up to given units of factor of production. Economic rent is area, above supply up to given price of factor production. According to diagram, PTR is economic rent where as OQRP are transfer earrings.

13. B
Transfer earnings is the area below supply curve upto given units of factor of production. Economic rent is area, above supply upto given price of factor production. According to diagram, economic rent is IML whereas transfer earnings are OKLJ.

14. B
Transfer earning is the area below supply curve up to given units factor of production of Economic sent is area above supply Curve up to given price of factor of production.



When supply curve was S_1 (inelastic) the transfer earnings were area C whereas economic sent consisted of area A and B. When supply curve became S_2, (elastic) economic sent decreased to area A while transfer earrings were the area B and C. Hence transfer earrings rose and economic rent decreased. In this case, inelastic supply curve will decrease the economic rent of labour.

15. B
As per definition, economic rent are earnings over and above transfer earnings which are minimum earnings required to keep a factor of production in its present use.

16. D
According to the diagram, OW is the wage rate whereas OQ is current labour. Therefore area OWRQ is current earnings as it is the product of wage and labour. There are no transfer earning because transfer earning is the area below supply a curve.
Economic rent is difference of transfer earnings and current earnings. As Transfer earnings is zero therefore area OWRQ is also economic rent.

17. B
According to the diagram, OW is the wage rate whereas OQ is current labour. Therefore area OWRQ is current earnings as it is the product of wage and labour. There are no transfer earning because transfer earning is the area below supply a curve.
Economic rent is difference of transfer earnings and current earnings. As Transfer earnings is zero therefore area OWRQ is also economic rent.

18. D
Transfer earnings is the opportunities cost of current labour earnings whereas economic rent is the difference of current earnings and transfer earnings. Therefore, according to statement:

Current Earnings	= £ 50,000
Transfer Earnings	= £ 15,000
Economic rent	= £ 50,000 - £ 15000 = £ 35, 000

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11.11 Multiple topics of chapter 11

1. **M/J 16/P33/Q14**
A firm is operating in a perfectly competitive market.
Why does the marginal revenue product of a factor of production employed by the firm fall as more of the factor is employed?
A Its average revenue falls.
B Its marginal physical product falls.
C Its marginal revenue falls.
D The supply price of the factor rises.

2. **M/J 16/P31/Q14**
A firm faces a downward-sloping demand for its product.
Assuming that labour is its only variable factor input, how does the firm derive its demand curve for labour?
A from the current price of output and the money wage rate of labour
B from the marginal factor cost of labour
C from the schedules of the marginal physical product of labour and of marginal revenue
D from the schedules of the marginal physical product of labour and the money wage rate

3. **M/J 16/P32/Q14**
A firm employs a worker who adds less to output than the previous worker employed.
What does this illustrate?
A decreasing marginal costs
B diseconomies of scale
C increasing returns to scale
D the law of diminishing returns

4. **M/J 16/P32/Q16**
For a firm in imperfect competition, the marginal revenue product of labour at any given level of employment is equal to
A marginal revenue divided by the number employed.
B marginal revenue divided by the wage rate.
C the marginal physical product of labour multiplied by marginal revenue.
D the marginal physical product of labour multiplied by the wage rate.

5. **M/J 16/P33/Q16**
What would cause a perfectly competitive firm's marginal revenue product of labour curve to shift to the right?
A a higher rate of sales tax
B a rise in the price of the final product
C an increase in labour supply
D an increase in wages

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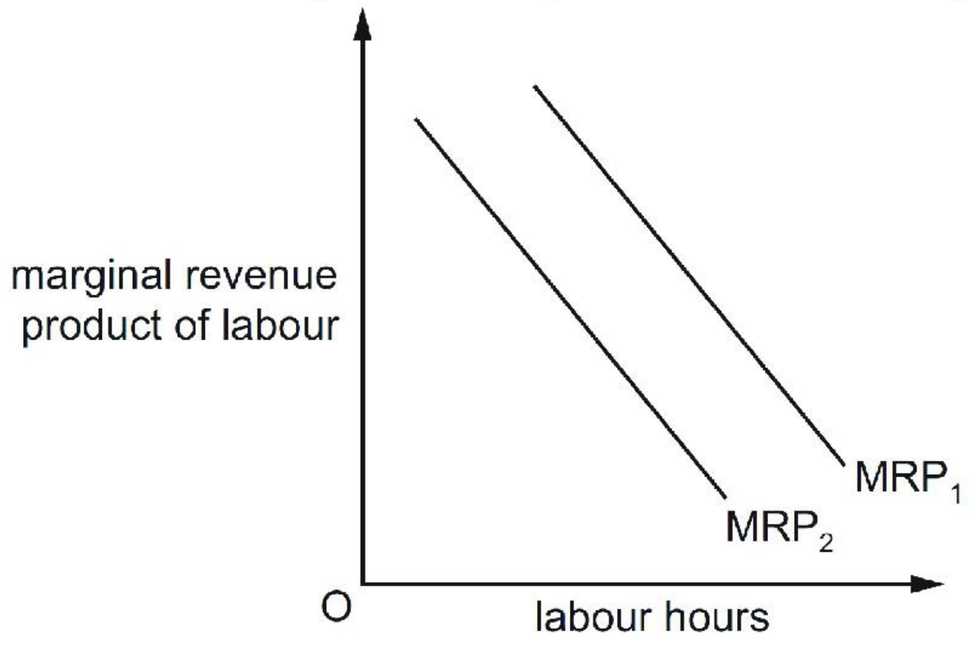
6. O/N 15/P31/Q4

The diagram shows a firm's initial marginal revenue product of labour curve (MRP1).

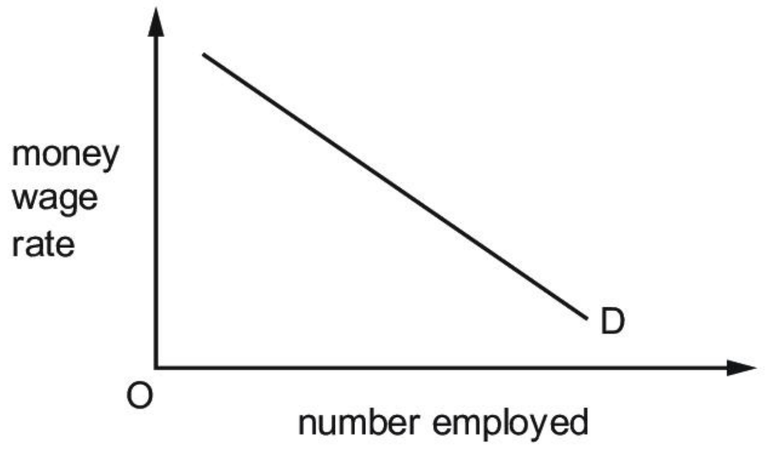


What could cause the curve to shift to MRP2?

A an increase in labour productivity
B an increase in the wage rate
C a reduction in labour hours
D a reduction in the price of the firm 's product

7. M/J 14/P31/Q4

The diagram shows the demand curve for labour.



What could cause the demand curve to shift to the right?

A a decrease in labour productivity
B an increase in immigration
C an increase in the average price level
D a fall in the money wage rate

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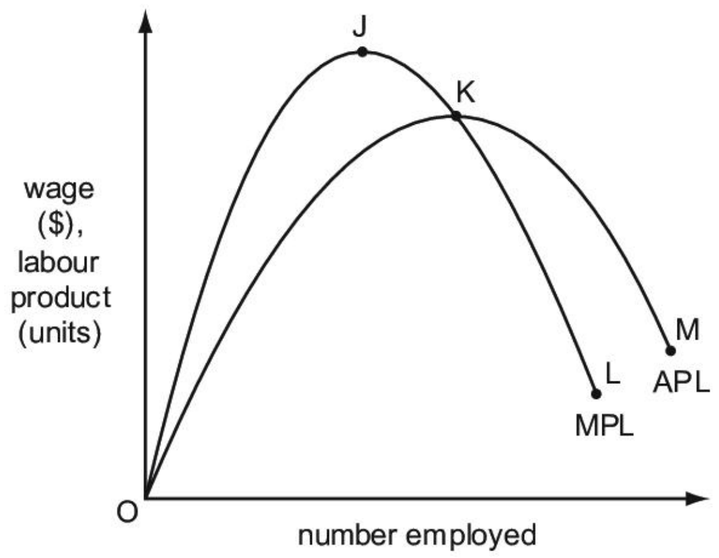
8. O/N 12/P33/Q4

The diagram shows a perfectly competitive firm's average product of labour and marginal product of labour curves.



The market price of the firm's product is $1.
Which segment of the curves represents the firm's demand for labour curve?

A OJ **B** JK **C** KL **D** KM

9. M/J 10/P32/Q3

What could cause the demand curve for labour to shift to the left?

A a decrease in immigration
B a decrease in labour productivity
C a fall in real wages
D a rise in the money wage rate

10. M/J 07/P32/Q5

For a firm in imperfect competition, the marginal revenue product of labour at any given level of employment is equal to

A marginal revenue divided by the number employed.
B marginal revenue divided by the wage rate.
C the marginal physical product of labour multiplied by marginal revenue.
D the marginal physical product of labour multiplied by the wage rate.

11. O/N 16/P32/Q17, M/J 06/P32/Q3

'The addition to revenue which results from employing one additional unit of a factor of production, the quantities of all other factors of production remaining constant'.
What does this define?

A marginal factor cost
B marginal revenue
C marginal revenue product
D the law of diminishing returns

12. O/N 04/P32/Q6

What will cause the demand curve for labour to shift to the right?

A a fall in the money wage rate
B a rise in real wages
C an increase in immigration
D an increase in labour productivity

13. M/J 04/P32/Q3

A firm is operating in an imperfectly competitive market.
Why does the marginal revenue product of a factor of production employed by the firm fall as more of the factor is employed?

A Its marginal physical product alone falls.
B Its marginal revenue alone falls.
C Its marginal physical product and its marginal revenue both fall.
D The supply price of the factor rises.

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14. O/N 12/P31/Q5, O/N 09/P32/Q6, O/N 05, M/J 02

What could cause a perfectly competitive firm's marginal revenue product of labour curve to shift to the right?

A an increase in wages

B a higher rate of sales tax

C an increase in labour supply

D a rise in the price of the final product

15. M/J 97/P32

Labour is the only variable factor of a profit-maximising firm which is a price taker in the labour market.
From what is the firm's demand curve for labour derived?

A its marginal factor cost curve

B its marginal revenue curve

C its marginal revenue product of labour curve

D its short-run marginal cost curve

16. M/J 94,M/J 00/P32

The following schedules relate to a firm.

Production schedule

Number of workers employed	1	2	3
Total output (units)	20	35	45

Demand schedule

Price (£)	10	9	8
Quantity demand (units)	20	35	45

What is the marginal revenue product from the employment of the third worker?

A £45 **B** £65 **C** £115 **D** £360

17. M/J 94/P32

Other things being equal, which of the following will cause the demand curve for labour to shift to the right?

A a fall in the memory wage rate

B a rise in real wages

C an increase in immigration

D an increase in labour productivity

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Answers Section

1. B
In perfect competitive market, MR is constant therefore only reason for MRP to be downward sloping is falling MPL due to law of diminishing returns.

2. C
As
Demand for labour = MRP = MR x MPL
Therefore, C is the correct option.

3. D
According to law of diminshing returns, with the increase in labour with some fixed factor, marginal product of additional worker is lesser than previous worker due to exhaustion of fixed factor.

4. C
By definition
MRP = MR x MPP

5. B
Demand for labour (MRP) can only shift if either there is a change in price of the product (MR) or change in productivity of labour (MPL). In this case an increase in the price of the firm 's product will shift it to the right.

6. D
Demand for labour (MRP) can only shift if either there is a change in price of the product (MR) or change in productivity of labour (MPL). In this case a reduction in the price of the firm 's product will shift it leftward.

7. C
Demand for labour can only shift if either there is a change in price of the product or change in productivity of labour. In this case a decrease in labour productivity will shift the curve left.

8. C
As MRP curve is the demand curve for labour and
MRP = MR x MPL
In case of perfectly competition MR = P therefore MRP = P x MPL
In this case P= $ 1
Hence MRP = MPL

9. C
Among all options, an decrease in labour productivity will decrease marginal product which in turn will decrease the marginal revenue product. Hence the demand curve will shift to left.

10. C
As per definition, MRP is the product of marginal revenue and marginal physical product.

11. C
As per definition, marginal revenue product is the contribution to revenue of a firm by additional unit of factor of production.

12. D
Among all options, an increase in labour productivity will increase marginal product which in turn will increase the marginal revenue product. Hence the demand curve will shift to right. Change in wage rate will only cause a movement along the curve.

13. C
In Imperfect markets, marginal revenue is downward sloping curve due to price maker behaviour of the firm. MPP slopes downward due to law of diminishing returns.
Marginal revenue product (MRP) is the product of MR and MPP therefore MRP slopes downward because marginal physical product and its marginal revenue both fall.

14. D
Change in wages is an endogenous factor and creates a movement along the same curve. An increase in price of product will increase the marginal revenue which will in turn raise the marginal revenue product.

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15. C

The demand curve of labour is derived from MRP theory. The demand curve is MRP (Marginal revenue product) which is product of marginal revenue and marginal product.

16. A

MRP can either be calculated a product of MR and MPP or calculating the rate of change in total revenue product to change in labour, i.e.,

$$MRP = \frac{\Delta TRP}{\Delta L} = \frac{TRP_2 - TRP_1}{L_2 - L_1}$$

Where $TRP = P \times TP = P \times Q$

According to statement (at 3rd worker) $TRP_3 = 8 \times 45 = 360$.

At 2nd worker $TRP_2 = 9 \times 35 = 315$

Therefore

$$MRP = \frac{360 - 315}{3 - 2} = 45$$

17. D

Among all options, an increase in labour productivity will increase marginal product which in turn will increase the marginal revenue product. Hence the demand curve will shift to the right. Wage rate is an endogeneous factor for demand for labour and therefore creates a movement along the same curve.

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Unit 12 Inequality and polices to distribute income

12.1 Means tested benefits

1. M/J 15/P31/Q15

Which combination of policy changes is most likely to redistribute income from the richest households to the poorest households in an economy?

	excise duties	means-tested benefits	universal benefits
A	decrease	increase	decrease
B	decrease	increase	increase
C	increase	decrease	increase
D	increase	decrease	decrease

2. O/N 15/P33/Q16

Changes to a government's welfare policies reduce the number of people who are eligible for welfare benefits.
Why might these changes reduce income inequalities and the level of poverty?

A Not everyone takes up the benefits for which they are eligible.

B Some benefit recipients misspend the money they receive.

C Those who lose their benefits will have a greater incentive to find employment.

D Those who lose their benefits will pay less tax.

3. M/J 14/P31/Q16, M/J 14/P33/Q16

What is an advantage of means-tested benefits over universal benefits?

A an increase in the percentage of those who take up benefits for which they are eligible

B a reduction in the rate at which benefits are withdrawn as households' incomes increase

C a reduction in the poverty trap

D the targeting of benefits on those in greatest need

4. O/N 13/P33/Q14

The table compares some of the properties of universal benefits and means tested benefits. Which pairing is correct?

	universal benefits	means tested benefits
A	greater disincentive effects	targeted at those most in need
B	higher take-up rate	more expensive
C	more expensive	greater disincentive effects
D	targeted at those most in need	barriers to entry

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Answers Section

1. A

Excise duties are example of regressive tax system and therefore should be decreased for more even distribution of income. Means-tested benefits are linked to sources of earnings and therefore given more to those who are more deserving and increase even distribution of income, hence should be increased. Universal benefits are not linked to means of an individual and therefore will be given to those even who may be already rich enough like pensions, hence should be reduced for more even distribution of income.

2. C

Government welfare benefits like unemployment benefits sometimes creates lethargy and sluggishness among the workers if they come close to the wages and salary workers possibly can earn. Reducing these benefits will create more difference between the unemployment benefits and pay from a job, hence creating an incentive to find and opt a job which will reduce inequality and poverty.

3. D

Universal benefits are available to all irrespective of income or wealth. These are paid out to everyone in certain categories, and are often age related, regardless of the recipients' income or wealth. Examples include universal state pensions and child benefits.

Means-tested benefits are paid only to those whose incomes fall below a certain level. They are targeted directly at those who are seen to be most in need. An example would be income support or unemployment benefits.

4. C

Universal benefits are available to all irrespective of income or wealth. These are paid out to everyone in certain categories, and are often age related, regardless of the recipients' income or wealth, hence more expensive. Examples include universal state pensions and child benefits.

Means-tested benefits are paid only to those whose incomes fall below a certain level and therefore less expensive. They are targeted directly at those who are seen to be most in need. An example would be income support or unemployment benefits. They create a disincentive effect.

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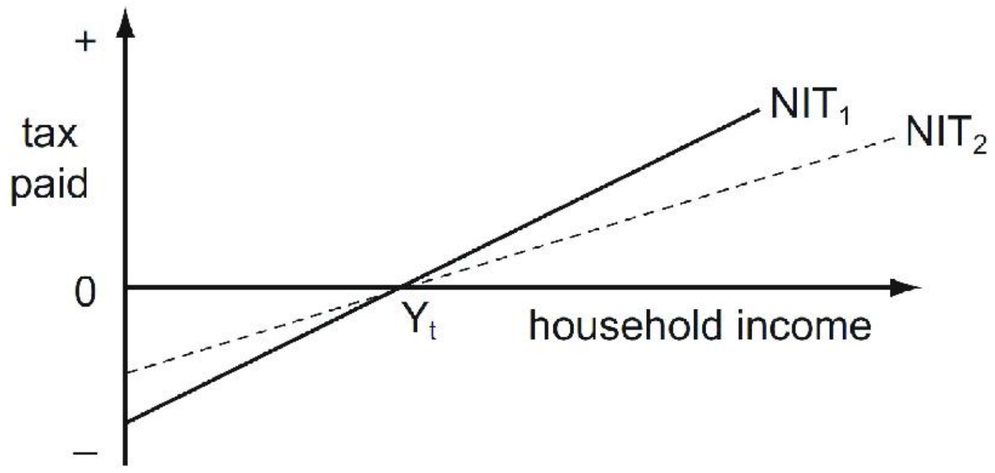
12.2 Types of taxes

1. **M/J 16/P32/Q17**
Which policy would be most effective in achieving a more equal distribution of disposable incomes between households?
A government support for trade unions
B import duties on manufactured goods
C minimum wage policy
D progressive income taxes

2. **O/N 15/P31/Q27, M/J 11/P32Q25**
Which tax is most likely to be regressive?
A an inheritance tax
B a property tax
C a sales tax
D income tax

3. **M/J 15/P33/Q13, O/N 11/P31/Q10, O/N 11/P33/Q9**
The diagram illustrates the working of a negative income tax system (NIT), where households with incomes above Y_t pay tax and those with incomes below Y_t receive a tax credit.



What would be the effects of decreasing the effective tax rate, thereby causing the NIT schedule to shift from NIT_1 to NIT_2?

	effect on work incentives	effect on net tax revenue
A	decrease	increase
B	decrease	uncertain
C	increase	increase
D	increase	uncertain

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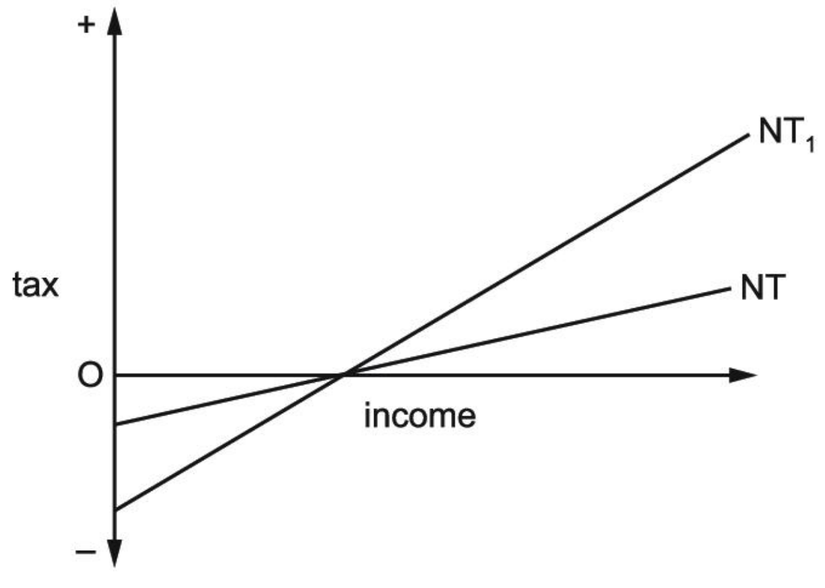
4. O/N 14/P33/Q13

A country has a negative income tax system.
The curve NT in the diagram shows the country's initial tax schedule.

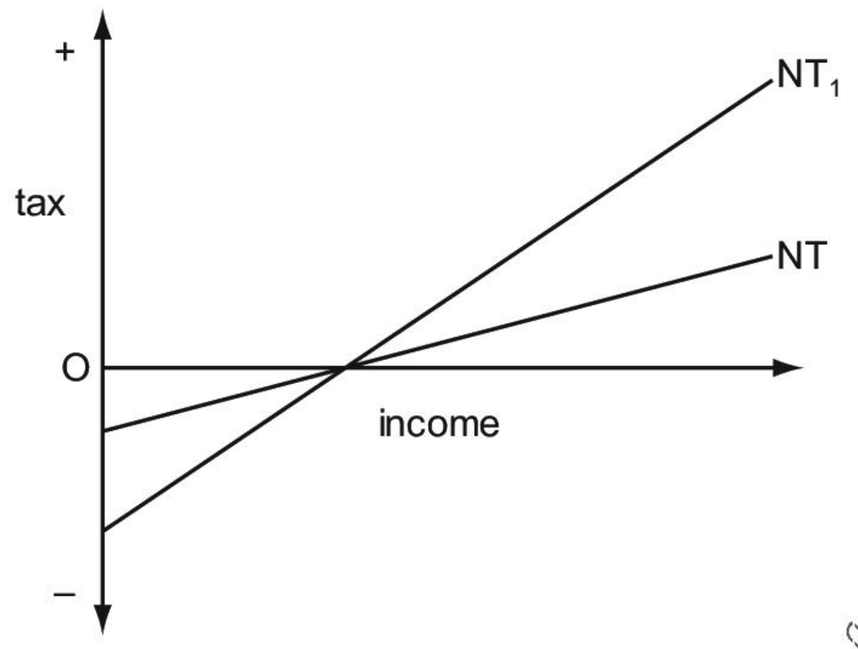


A change in the tax rate causes the schedule to shift to NT_1.
What is likely to be the impact on efficiency and on equity?

	efficiency	equity
A	improvement	improvement
B	improvement	worsening
C	worsening	improvement
D	worsening	worsening

5. M/J 13/P31/Q13

A country has a negative income tax.
The curve NT in the diagram shows the country's initial tax schedule.



A change in the tax rate causes the schedule to shift to NT_1.
What is most likely to be the impact on incentives and on equity?

	incentives	**equity**
A	improvement	improvement
B	improvement	worsening
C	worsening	improvement
D	worsening	worsening

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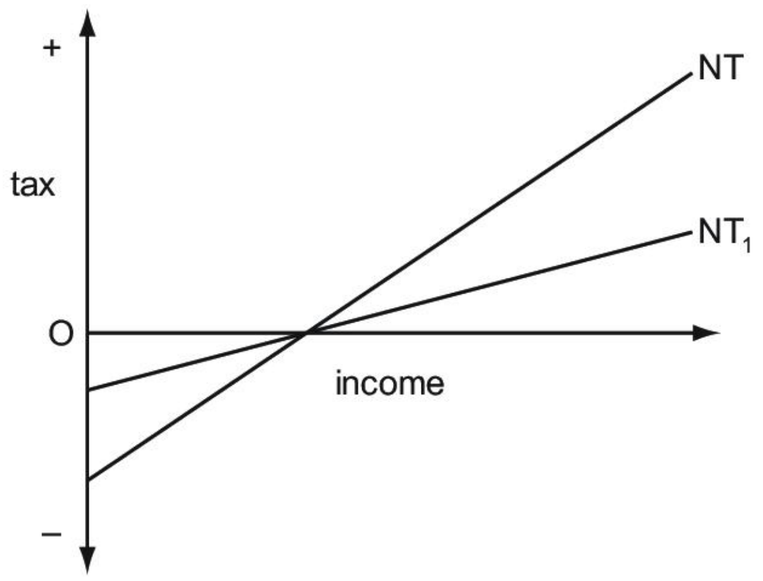
6. O/N 13/P31/Q13

A country has a negative tax income regime.
The curve NT in the diagram shows the country's initial tax schedule.

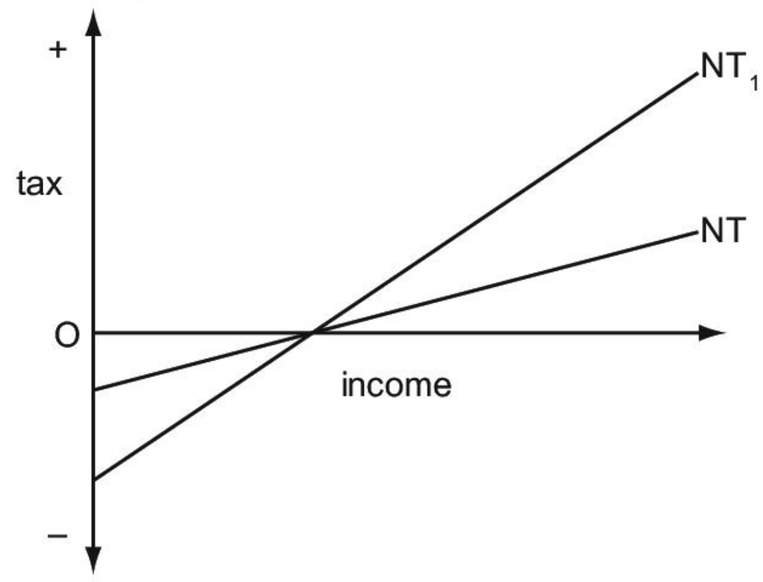


A change in the tax rate causes the schedule to shift to NT_1.
How will this affect work incentives and the after-tax distribution of income?

	work incentives	distribution of income
A	strengthen	less equal
B	strengthen	more equal
C	weaken	less equal
D	weaken	more equal

7. O/N 13/P32/Q14

A country has a negative income tax.
The curve NT in the diagram shows the country's initial tax schedule.



A change in the tax rate causes the schedule to shift to NT_1.
How will this affect work incentives and the after-tax distribution of income?

	work incentives	distribution of income
A	strengthen	more equal
B	strengthen	less equal
C	weaken	less equal
D	weaken	more equal

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8. M/J 14/P32/Q13

A country's government reduces the specific tax on packets of cigarettes.
What could explain why this leads to an increase in tax revenue from cigarette sales?

A Consumers switch to dearer brands.
B The demand for cigarettes is price-inelastic.
C The price of cigarettes falls by less than the reduction in tax.
D There is a reduction in illegal imports of cigarettes.

9. O/N 14/P33/Q16

What acts as a constraint on the use of income taxes to redistribute income to poorer groups in society?

A the costs to employers of tax collection
B the fact that poorer groups have a higher marginal propensity to save
C the fact that richer and poorer groups have the same marginal propensity to consume
D the likelihood that, at some point, higher marginal taxes will reduce tax revenue

10. O/N 12/P32/Q15

What is most likely to be regressive?

A corporate profit taxes
B state pension benefits
C specific tax on cigarettes
D unemployment benefits

11. O/N 12/P32/Q29

Why is it more effective to increase regressive taxes rather than progressive taxes when pursuing a deflationary fiscal policy?

A Changes in VAT have minimal effect on consumers' spending.
B It is much more unfair to increase progressive taxes.
C Many workers reduce the hours they work when income taxes are raised.
D Low income households spend a larger proportion of their incomes.

12. O/N 11/P31/Q11, O/N 11/P33/Q10

Which commodities should a government tax if it wishes to make the tax system more progressive?

A those for which demand is price elastic
B those for which demand is price inelastic
C those with an income elasticity of demand greater than one
D those with an income elasticity of demand less than one

13. O/N 11/P31/Q28, O/N 11/P33/Q27

A regressive tax is defined as one where

A all taxpayers pay the same absolute amount of their income in taxation.
B high income earners pay a lower proportion of their income in taxes than low income earners.
C high income earners pay less in taxes than low income earners.
D high income earners pay more in taxes than low income earners.

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14. O/N 11/P32/Q14

The government of a country decides to increase the proportion of its tax revenue that it obtains from indirect taxes and to reduce the proportion it obtains from income tax.
Total tax revenue is left unchanged.
What is likely to be the impact on the distribution of income and on work incentives?

	distribution of income	work incentives
A	less equal	decrease
B	less equal	increase
C	more equal	decrease
D	more equal	increase

15. O/N 11/P32/Q29

Assuming no change in tax rates or tax-free allowances, for which tax would the amount paid in tax become a smaller proportion of taxpayers' income during a period of wage and price inflation?

A a progressive income tax
B a specific tax on tobacco
C capital gains tax
D value added tax

16. M/J 11/P32/Q12

Individuals are free to choose the number of hours they work, how much of their income they save and which goods and services they buy.
Which type of tax will not distort the choices individuals make?

A a tax levied on the wealth accumulated by individuals
B a uniform tax which raises the same fixed amount from all individuals
C indirect taxes on specific goods
D proportional income taxes

17. M/J 11/P32/Q7

A product with infinite elasticity of supply has sales of 1000 units a week at a price of $1 per unit. Price elasticity of demand is 1.5 over the relevant range.
The government imposes a tax of 10%.
What will be the government's weekly tax revenue?

A $15
B $85
C $100
D $150

18. O/N 10/P32/Q28

When will taxes be most effective in dampening cyclical changes in national output?

A when the tax yield is independent of national income
B when the tax yield varies inversely with national income
C when the tax yield varies less than proportionately with national income
D when the tax yield varies more than proportionately with national income

19. O/N 10/P32/Q13

A tax is said to be regressive when

A low income earners pay a higher proportion of their income in tax than high income earners.
B marginal tax rates exceed average tax rates.
C the cost of collecting the tax exceeds the revenue raised.
D the marginal rate of tax is higher for high income earners than low income earners.

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20. O/N 10/P32/Q14, M/J 08

The government of a country decides to increase the proportion of its tax revenue that it obtains from income tax and to reduce the proportion it obtains from indirect taxes. Total tax revenue is left unchanged.
What is likely to be the impact on the distribution of income and on work incentives?

	distribution of income	work incentives
A	more equal	increase
B	more equal	decrease
C	less equal	increase
D	less equal	decrease

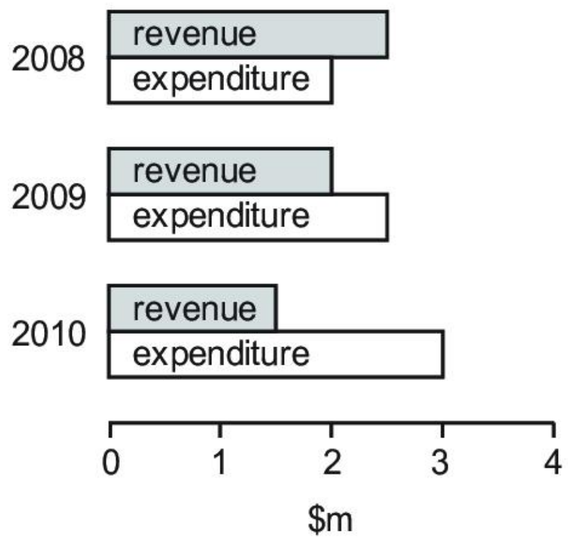
21. M/J 07/P3/Q17

In 1995 the Canadian government increased the specific tax on each packet of cigarettes by $3.50.
What is the most likely explanation for the resulting fall in tax revenue from cigarette sales?

A Consumers switched to cheaper brands.
B The demand for cigarettes is price-inelastic.
C There was an increase in illegal imports of cigarettes from the USA.
D The whole of the increase in tax was borne by the cigarette manufacturers.

22. M/J 07,M/J 11/P3/Q24

The diagram shows a government's revenue and expenditure for three years.
What can be concluded from the diagram?



A A budget deficit was replaced by a budget surplus.
B A government net borrowing requirement emerged.
C The economy moved from a recession into a boom period.
D The yield from taxation continuously increased.

23. O/N 03/P3/Q18

A regressive tax is defined as one which requires

A all taxpayers to pay the same absolute amount of their income in taxation.
B high income earners to pay less in taxes than low income earners.
C high income earners to pay more in taxes than low income earners.
D high income earners to pay a lower proportion of their income in taxes than low income earners.

24. M/J 99/P3/Q36

In an economy with a progressive tax system, there is an increase in before-tax incomes.
What will happen to after-tax incomes?

A There will decrease less than proportionately.
B There will decrease more than proportionately.
C There will increase less than proportionately.
D There will increase more than proportionately.

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25. O/N 97/P3

The government reduces the basic rate of income tax and at the same time increases indirect taxes. What effect will these changes have on personal disposable income and on the cost of living?

	personal disposable income	cost of living
A	Increase	increase
B	Increase	decrease
C	Decrease	increase
D	Decrease	decrease

26. O/N 96/P3

In which circumstances would a tax on alcohol be most effective in reducing drinking?

A high income elasticity of demand for alcoholic drinks.
B high price elasticity of demand for alcoholic drinks.
C low income elasticity of demand for alcoholic drinks.
D low price elasticity of demand for alcoholic drinks.

27. O/N 95/P3

Assuming no other changes, how will inflation affect the real value of government revenue from specific taxes and from ad -valorem taxes?

	specific taxes	ad valorem taxes
A	constant	increase
B	decrease	constant
C	decrease	decrease
D	increase	increase

28. O/N 91/P3

A government decides to replace a local property tax by a flat rate community charge paid by each adult. The new tax will be

A neutral
B progressive.
C proportional.
D regressive.

29. M/J 91,M/J 96/P3, O/N 99/P3

Which of the following does **not** produce an automatic increase in revenue during a period of inflation?

A old age pensions.
B social security contributions.
C specific exercise taxes.
D value added tax.

30. M/J 90/P3/Q48, O/N 91/P3/Q45

Which of the following elements of the UK fiscal system is regressive in its distributional impact?

A the zero rate of value added tax for essential goods.
B the taxation of capital gains.
C the payment of child benefits to families.
D the excise taxes on beer and tobacco.

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31. M/J 90/P3/Q43

Which of the following tax is defined as a tax where each person pays the same total lump-sum in tax?

A an indirect

B a toll tax

C a progressive tax

D a regressive tax

32. M/J 90/P3

A change in the level of employers contributions to state national insurance is an example of

A anti-monopoly policy.

B fiscal policy.

C monetary policy.

D prices and income policy.

33. M/J 13/P32/Q15, O/N 02/P32/Q13, M/J 90, M/J 85

The table shows the marginal tax rates paid by a country's taxpayers at different levels of income.

Income	Tax rate
First $4000	Zero
$4001 - $20 000	20%
Above $20 000	40%

Which of the following correctly describes this tax?

A it is regressive over the entire range of income.

B it is proportional over the income range $4001- 20 000.

C it is proportional over the range of income above $20 000.

D It is progressive over the range of income above $4000.

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Answers Section

1. D

Government support of trade unions may help unionised workers but not non-unionised workers. Import duties are regressive and increase inequality of income distribution. Minimum wage policy may raise wages for low income workers but will also create some unemployment and therefore we will be uncertain about its net effect.

Income tax is a direct tax levied on the incomes of individuals and profits of businesses.Income tax is a progressive tax, which means that as incomes increase, taxes make up a greater proportion of income. By increasing income tax , there will be a more equal distribution of income, because more taxes will be taken from those in higher income brackets and less taxes will be taken from those in lower income brackets, and the tax revenue would eventually be used to provide social security benefits and whatnot to those in need. Hence, progressive income tax will be most effective policy.

2. C

Sales tax is fixed per unit in amount (specific tax) or as a percentage of price of the product (advalorem tax) but in both cases amount of tax does not change with the change in income. A fixed amount will take greater proportion of income if the tax payer is poor and lesser proportion of income if the tax payer is rich. Hence sales tax is regressive.

3. D

As the curve is becoming more flatter, it means it is getting less incremental or progressive than earlier situation which means more work incentive. However, net tax revenue is uncertain.

4. C

As the curve is becoming more steeper, it means it is getting more incremental or progressive than earlier situation which means more equity or even distribution of income. Higher rate of tax means greater dead weight loss created and therefore worsen the efficiency.

5. C

As the curve is becoming more steeper, it means it is getting more incremental or progressive than earlier situation which means more equity or even distribution of income. If workers are charged more tax as they earn more, it discourages them from working more and therefore work incentives weaken hence, higher rate of tax means greater disincentive to work.

6. A

As the curve is becoming more flatter, it means it is getting less incremental or progressive than earlier situation which means less equity or even distribution of income. Less progressive tax means stronger incentive to work.

7. D

With the shift of curve tax is more progressive now. If workers are charged more tax as they earn more, it discourages them from working more and therefore work incentives weaken. It can be observed that the NT_1 is steeper than NT, which means it also has a higher tax rate which discourages work.
As the tax is becoming more progressive therefore there will be more even distribution of income.

8. D

The government has reduced specific tax on cigarettes in general, switching to different dearer brands will not make a difference since every brand is taxed the same amount. So this is not an explanation as to why tax revenue rises. If demand is price-inelastic, the reduction in specific tax will reduce the price but since demand is inelastic quantity demanded will increase by a smaller proportion. Therefore tax revenue will be smaller. The explanation given in option C also does not explain why a smaller decrease in price will eventually lead to higher tax revenue. If illegal imports are smaller, smokers are likely to shift to domestic producers for cigarettes. So a fall in price will lead to large increase in quantity demanded because smokers have now shifted to the domestic market, this could lead to higher tax revenue. So option D is the right explanation.

9. D

According to Laffer curve, due to disincentive effect, at some point, higher marginal taxes will reduce tax revenue and limited funds available to help the poor and therefore it will act as a constraint on the use of income taxes to redistribute income to poorer groups in society.

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10. C

"Regressive" in economics refers to taking a greater proportion from those of lower incomes. Corporate taxes are fixed at a certain proportion or increase as profits goes up. Specific taxes on cigarettes are regressive, because since the amount is fixed, a person who is rich only pays a tiny proportion of his income towards the tax, whereas a poor person will pay a high percentage of his income towards the tax. So specific taxes are regressive in nature.

11. D

Deflationary fiscal policy is imposed to reduce aggregate demand. VAT is a sales tax which is regressive in nature and option A is suggesting that regressive taxes are ineffective which contradicts the statement in the question. Option B is a normative statement because economists do not take into account what is fair or unfair since that is something for policymakers to decide. Option C shows why progressive taxes are effective but that still does not explain why regressive taxes are better. Option D is correct because low income households spend more of their income, so if you tax them they will spend even less which helps in reducing aggregate expenditure.

12. C

Goods with high income elasticity of demand are luxury goods and bought by rich class therefore taxing them will make system more progressive.

13. B

By definition a regressive tax is defined as one where high income earners pay a lower proportion of their income in taxes than low income earners.

14. B

Indirect taxes are regressive, implying that poor people have to pay a greater proportion of their income towards taxes as compared to the rich. Therefore increasing indirect taxes will make distribution of income worse in the country. A reduction in direct tax will increase work incentive.

15. B

A progressive income tax increases as a person's income goes up. So the person's pays a larger proportion of his income as his income increases. Capital gains tax are normally levied on asset price gains such as stocks, real estate, etc. Since it is a fixed proportion, it does not matter whether the increase in capital price is $1000 or $1 million; the person pays a fixed proportion of his income towards it. A value added tax is a proportion of a product's price. So if inflation is high and the price of a good doubles then so will the tax amount, so the individual ends up paying the same proportion out of his income. But consider a specific tax on tobacco, if the specific tax is $1 and the price of tobacco jumps from $10 to $20. With inflation, nominal wages or incomes increase too, therefore an individual pays a smaller proportion of his income towards taxes.

16. C

Individuals choices will not be affected if direct tax is unchanged. Indirect taxes do not affect the disposable incomes so they won't affect the choices either.

17. B

$P_1 = \$1$ $Q_1 = 1000$

As PES = ∞ , any increase in tax will completely fall over consumers and price of product will increase with the per unit amount of tax.

Tax rate = 10% Per Unit tax = 10% of $1 = $0.1 hence $P_2 = \$1.1$

New sales quantity can be calculated from PED which is equal to 1.5.

$$PED = \frac{\%\Delta Qd}{\%\Delta P} = \frac{\Delta Q}{\Delta P} \times \frac{P_1}{Q_1} = \frac{x}{-0.1} \times \frac{1}{1000} = 1.5$$

$$x = \Delta Q = 1000 \times (-1.5) \times 0.1 = -150$$

$$Q_2 = Q_1 + \Delta Q = 1000 + (-150) = 850$$

Total tax revenue = Per unit tax x Quantity = 0.1 x 850 = $ 85

18. D

In order to overcome multiplier effect change of national income, the tax yield should be greater than rate of change of national income.

19. A

By definition, regressive tax rate decrease with increase in income and hence more tax is collected from lower income group. So D is the answer.

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20. B

Income tax is a direct tax levied on the incomes of individuals and profits of businesses.Indirect taxes are levied on consumer spending by being included in the value of commodities. Income tax is a progressive tax, which means that as incomes increase, taxes make up a greater proportion of income. Indirect taxes are a form of regressive taxation, which means that as income increases, taxes make up a smaller proportion of income. By increasing income tax and reducing indirect taxes, there will be a more equal distribution of income, because more taxes will be taken from those in higher income brackets and less taxes will be taken from those in lower income brackets, and the tax revenue would eventually be used to provide social security benefits and whatnot to those in need. Also, work incentives would decrease, because the personal disposable income that workers would receive would reduce due to higher income tax rates.

21. C

If consumers switch to cheaper brands they will still pay same per unit tax. Tax revenue will increase if demand is inelastic due smaller proportionate fall in quantity demanded. Whether manufacturers, wholesalers, retailers or consumers bear the real burden will not alter total tax revenue to government.

An increase in illegal imports of cigarettes will lead to tax avoidance and therefore will reduce total tax revenue to government.

22. B

According to the diagram, there was surplus in government budget in 2008. However in 2009 this surplus turned into deficit because that government spending was greater than the taxes collected. Hence in order to finance this budget deficit, a government net borrowing requirement emerged.

23. D

By definition, a regressive tax is one which requires high income earners to pay a lower proportion of their income in taxes than low income earners.

24. C

An increase in before tax income will increase their personal disposable income. After tax incomes will therefore have to undergo the tax cut so they will increase less than proportionately.

25. A

By decreasing basic rate of income tax, direct tax decreases and hence leads to an increase in personal disposable income. On the other hand an increase in indirect tax, which is regressive in nature, will increase taxes on goods and services and reduce aggregate supply. Hence it will lead to cost push inflation. So cost of living increases.

26. B

Price elasticity of demand (PED) is defined as the responsiveness of quantity demanded to changes in price. A high PED means that a change in price leads to a comparatively much larger change in quantity demanded. A tax on a commodity raises the cost of production increasing the price of the commodity. For a good with high price elasticity of demand, this increase in price will cause a much larger decrease in quantity demanded, therefore reducing drinking effectively.

27. B

Specific tax is fixed in amount per unit irrespective of price while ad valorem tax is fixed in proportion of price of the product. An inflation will lead to increase in prices but amount will stay same in case of specific tax, hence reduces real value of government.

On the other hand, amount of tax will increase in same proportion to inflation, therefore, real value of government revenue stays constant.

28. D

Flat rate community charge will be regressive because tax amount will not change with the rise in income level.

29. C

Specific exercise tax is a fixed in amount irrespective of the price of the product and income of individual. Hence specific taxes don't count in automatic stabilizers as this tax does not vary with the income level.

30. D

The excise taxes on beer and tobacco are regressive in nature as same tax amount for each level of income will cause tax rate to decrease with rise in income level.

31. D

By definition, a regressive tax is one for which the tax rate decreases for higher incomes and increases for lower incomes. Total lump-sum tax paid remains the same in amount and therefore becomes lesser proportion of income as income increases because:

$$\text{Rate of tax} = \frac{\text{tax amount}}{\text{income}} \times 100$$

Hence it is regressive tax.

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32. B

By definition, fiscal policy is that government macro-economic policy in which the government alters government spending and taxes to achieve its objectives. In this case employers contributions and national insurance are examples of government collections.

33. D

According to the table, there is no tax for income below or equal to $4000. However, tax rate increases for incomes beyond $4000. By definition, progressive tax rate means that tax rate increases with increase in income. So progressive tax rate is being followed for income above $4,000. There is no tax system for incomes below $4000, so D is the answer

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12.3 Gini coefficient and Lorenz curve

1. **M/J 15/P32/Q14**
When will a society have achieved an equitable distribution of income?
A when all individuals have equal job opportunities
B when all workers are paid wages equal to their marginal value product
C when the incomes within the society are equally distributed
D when the society believes that the distribution of income is fair

2. **M/J 14/P31/Q15**
Income inequality can be measured by the Gini coefficient. On a scale of 0 to 100, the higher the value the greater the inequality.

The table below shows three Gini coefficient values for four OECD countries. The first is from wages, the second when government welfare payments are included and the third when welfare payments and government health and education spending are included.

In which country did welfare payments make the greatest contribution to income redistribution?

	inequality after wages from work	inequality after wages and welfare payments	inequality after wages, welfare payments and health and education spending
A	36.8	25.9	18.1
B	40.5	31.3	24.8
C	40.6	26.1	22.3
D	45.3	37.0	30.3

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Answers Section

1. D
Equitable distribution of income means an even but not equal distribution of income. Equity means fair, however, standards of fair not fair are different in different societies at different times.

2. C
The lower the value of Gini coefficient, the lesser the inequality and we can find the contribution of welfare payments to income redistribution by finding the difference of inequality before and after welfare as shown in the diagram below.

	inequality after wages from work	inequality after wages and welfare	contribution to income redistribution by welfare
A	36.8	25.9	36.8 - 25.9 = 10.9
B	40.5	31.3	40.5 - 31.3 = 9.2
C	40.6	26.1	40.6 - 26.1 = 14.5
D	45.3	37	45.3 - 37 = 8.3

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12.4 Multiple topics of chapter 12

1. M/J 16/P31/Q13

The table shows the employment size distribution (%) of manufacturing firms in two European countries reported by OECD in 2011.

	< 50 employees (%)	50–250 employees (%)	> 250 employees (%)
country X	50.3	30.7	19.0
country Y	20.2	25.5	54.3

What is most likely to explain the different employment distribution in the two countries?

A Country X has a bigger domestic market.

B Country X has a larger supply of entrepreneurs.

C Country X is more involved in international trade.

D Country X makes greater use of advanced technology.

2. M/J 16/P31/Q17, M/J 07/P32/Q16

Which combination of fiscal policy measures would be most effective in reducing income inequality?

	top rates of income tax	**indirect taxes**	**value of state benefits**
A	increase	increase	increase
B	reduce	increase	reduce
C	increase	reduce	increase
D	reduce	reduce	reduce

3. O/N 14/P14/Q27

Which combination of government interventions would be intended to support the lower income group in an economy?

	welfare payment system	**tax system**	**type of subsidy**
A	means tested	progressive	food
B	means tested	proportional	private transport
C	Universal	proportional	food
D	universal	progressive	private transport

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Answers Section

1. B
Larger proportion of employees in smaller firms means more number of entrepreneurs hence country X has a larger supply of entrepreneurs. There is no evidence for domestic and international trade proportion in these countries.

2. C
In order to reduce income inequality, the upper class group needs to be taxed more using progressive tax rate system. Indirect taxes such as GST, VAT, etc, if decrease, will make goods and services available to everyone at lower prices and therefore reduce income inequality. The government will have to spend more on lower class from the collected taxes so value of state benefits will increase in order to reduce income inequality.

3. A
To support the lower income group in an economy, government needs to increase subsidy on food, make tax system more progressive. Hence A is correct answer.

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Unit 13 National income accounting

13.1 Concepts of national income

1. M/J 16/P31/Q19
What is not included in the measurement of national income?

A benefits paid to the unemployed
B dividends paid to shareholders
C profits retained by companies
D rent paid to landlords

2. O/N 15/P33/Q17
The table shows figures from the national income accounts of four countries, expressed in terms of a common currency. There is no government sector and no foreign trade.
Which country enjoys the highest consumption per capita?

	gross national product	gross investment	population
A	90	10	12
B	100	20	10
C	150	10	20
D	220	120	20

3. Dec. 80,O/N 91/P3
What is the difference between gross national product and net national product.

A deprecation.
B indirect taxes.
C net property income from abroad.
D subsidies.

4. O/N 01/P3
The value of net property income from abroad is negative.
What can be deduced from this?

A Capital inflows exceeds capital outflows.
B Imports exceed exports.
C Gross national product at factor is less than gross domestic product at factor cost.
D Gross fixed capital formation is less than capital consumption.

5. M/J 96/P3
In national income accounting, which of the following is treated as a transfer payment?

A expenditure on the government's embassies in foreign countries.
B fees paid to independent research scientists by the government.
C interest paid to holders of gilt-edged government securities.
D salaries of civil servants.

6. O/N 93/P3
Gross domestic product is equal to

A gross national product plus exports less imports.
B gross national product plus imports less exports.
C gross national product less net property income from abroad.
D national income plus capital consumption.

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7. M/J 92/P3

To derive gross national product at market prices from gross domestic product at market prices, allowance has made for

A deprecation.
B exports and imports.
C indirect taxes and subsidies.
D net property income from abroad.

8. O/N 91/P3

Which of the following is included in personal disposable income but not in national income?

A dividends distributed by companies.
B inputted rents of owner-occupied housing.
C income from self-employment.
D retirement pensions paid by the government.

9. O/N 14/P14/Q17

A woman joins the labour force earning a salary of $25 000 per annum. Her partner, who is already employed, earns $18 000 per annum. The couple pay a childminder $8000 per annum to look after their baby.
What will be the increase in GDP?

A $17 000
B $25 000
C $33 000
D $51 000

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Answers Section

1. A
Transfer payment are government expenditures on welfare such as unemployment benefits, pensions etc. against which no goods and services are produced. Hence transfer payments are not included in measurement of national income.

2. B
In 2 sector economy
$Y = C + I \Rightarrow \quad C = Y - I$

	Y = C + I	I	C = Y - I	Population	Consumption per capita = Consumption yPopulation
A	90	10	90-10=80	12	80 y12 = 6.7
B	100	20	100-20=80	10	80 y10 = 8
C	120	10	120-10=110	20	110 y20 = 5.5
D	220	120	220-120=100	20	100 y20 = 5

3. A
Gross National Product (GNP) is the sum of gross domestic product (GDP) and net property income from abroad. Net National Product (NNP) is the difference of Gross National production and depreciation in the country ,i.e.,
NNP = GNP – Depreciation $\Rightarrow$ GNP – NNP = Depreciation

4. C
As
GNP = GDP + Net property income from abroad.
If net property income from abroad is negative, then
GNP = GDP + (- Net property income from abroad)
Hence GNP < GDP.

5. C
Transfer payment are government expenditures on welfare such as unemployment benefits, pensions etc. Among these, interest paid to holders of gilt edged government securities is also included in transfer payments.

6. C
As per definition
Gross National Product (GNP) = Gross Domestic Product (GDP) + Net Property Income from Abroad
Therefore
GDP = GNP – Net Property Income from abroad

7. D
As per definition GNP is the sum of GDP and net property income from abroad.

8. D
National income does not include government spending on unemployment benefits and retirement pensions also known as transfer payments. However, personal income does include them.

9. C
Her partner, who is already employed, earns $18 000 per annum was already part of GDP but her and childminder's earnings will cause in increase in GDP. Hence, $25 000 + $8000 = $33 000 will be increase in GDP.

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13.2 Nominal and Real GDP

1. **M/J 15/P31/Q17**
During a year, a country's national income in money terms increased by 5%, prices increased by 4% and the total population increased by 2%.
What was the approximate change in real income per head?
A a decrease of 1% **B** a decrease of 2% **C** an increase of 1% **D** an increase of 2%

2. **O/N 14/P32/Q20**
During a year, a country's national income in money terms increased by 8%, total population increased by 2% and real income per head remained constant.
What was the approximate change in the average price level?
A a decrease of 4% **B** an increase of 4% **C** an increase of 6% **D** an increase of 10%

3. **M/J 14/P32/Q16**
Over a given period, money income in an economy increased by 6%. Over the same period, prices rose on average by 4%.
What can be deduced from this?
A Real income increased by 2%.
B The income velocity of circulation decreased by 2%.
C The money supply increased by 10%.
D The volume of output decreased by 2%.

4. **O/N 12/P32/Q16, M/J 00/P32/Q31**
Over a given period, the nominal value of a country's national income increased by 20% and the rate of inflation was 10%.
What can be deduced from this information?
A There was an increase in the volume of output.
B There was a reduction in the demand for money.
C There was an increase in the income velocity of circulation.
D The country's money supply increased by 10 %.

5. **M/J 10/P32/Q14, O/N 14/P33/Q17**
Between 2008 and 2009 a country's national income at current prices increased by 15 %. At the same time the country experienced 5 % inflation.
Which index number most closely represents the country's national income in 2009 at 2008 prices (2008 = 100)?
A 103 **B** 110 **C** 115 **D** 120

6. **M/J 08/P3/Q17**
During a year, a country's national income in money terms increased by 8 %, prices increased by 4% and total population increased by 2%.
What was the approximate change in real income per head?
A a decrease of 2 % **B** nil **C** an increase of 2 % **D** an increase of 4 %

7. **M/J 06/P3/Q16**
The table gives data for an economy.

	2000	2001	2002	2003	2004
Gross Domestic Product (GDP) at current prices ($ billion)	200	220	240	300	320
GDP deflator	100	109	118	149	154

In which year did real GDP decline compared with the previous year?
A 2001 **B** 2002 **C** 2003 **D** 2004

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8. O/N 02,O/N 08/Q15

During a year, a country's national income in money terms increased by 6%, prices increased by 4% and total population increased by 2%.
What was the approximate change in real income per head?

A a decrease of 2% **B** nil **C** an increase of 2% **D** an increase of 4%

9. O/N 02/P3/Q14

Assuming that all indexes have 1990 as 100, the national income figures for 2000 at 1990 prices may be obtained by multiplying 2000 national income at current prices by.

A $\frac{\text{the index of 2000 prices}}{\text{the index of 1990 prices}}$

B $\frac{\text{the index of 2000 prices}}{\text{the index of 1990 output}}$

C $\frac{\text{the index of 1990 output}}{\text{the index of 2000 output}}$

D $\frac{\text{the index of 1990 prices}}{\text{the index of 2000 prices}}$

10. M/J 00/P3

The gross domestic product of a country is £3000 m and the price index stands at 150.
What is the country's gross domestic product, valued in the prices of the base year of the price index?

A £1000 m. **B** £2000 m. **C** £3000 m. **D** £4500 m.

11. O/N 11/P31/Q13, O/N 11/P33/Q12, O/N 94/P3/Q21, Dec. 85

The table gives information about two countries in 1994 and 2004.

country	GNP (local currencies)		population (thousands)		prices (1994 = 100)
	1994	2004	1994	2004	2004
1	5 000	18 000	5000	5000	300
2	10000	20 000	3000	3000	200

From the data in the table, what can be concluded about the real GNP per head?

A It fell in country 2 only.
B It fell in countries 1 and 2.
C It rose in countries 1 and 2.
D It rose in country 2 only.

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Answers Section

1. A
Percentage change in real income per head = 5% - 4% - 2% = -1 %
Therefore there is an decreased by 1%

2. C
Real income per head growth = total nominal income growth – population growth – inflation. So if real income per head growth is zero and national income and population growth are 8% and 2% respectively. Then inflation must have been 6% so that real income per head is zero.

3. A
Real income refers to purchasing power.
Real income growth=Nominal income- Inflation
Inflation is subtracted to offset the effect of rising prices to observe how standards of living of people have improved. Real income growth= 6%-4%=2%. So real income grew by 2% which means option A is the correct answer.

4. A
If nominal GDP went up by 20% and inflation was 10%, then real GDP which is GDP calculated at fixed price must have increased by 10%. In other words, output must have increased, so option A is correct. The monetary equation is MV=PY. M is money, V is velocity of money, P is prices and Y is real output. So if the left side of the equation which is nominal GDP went up, then the right side of the equation must also increase. However, with no values, it is impossible to deduce whether the other statements are correct.

5. B
When country's national income is measured at base year prices it excludes the effect of inflation. Therefore
increase in national income = 15% - 5% = 10%
When measured in terms of index, base year index will be 100. After including the increase in real income, the new index will be 110 (100 + 10).

6. C
Percentage change in real income per head = 8% - 4% - 2% = 2%
Therefore there is an increase of 2%

7. C

	2000	2001	2002	2003	2004
GDP at Current Prices	200	220	240	300	320
GDP Deflator	100	109	118	149	154
Real GDP = $\frac{\text{Nominal GDP}}{\text{Deflator}}$	$\frac{200}{100} = 2$	2.02	2.03	2.01	2.08

According to table real GDP declined in 2003 compared to 2002.

8. B
Approximate change in real income per head is zero because the increase in population is the same as increase in real national income, therefore, there is no change in real income per head, i.e,
6% - 4% - 2% = 0%

9. D
As

$$\text{Deflator} = \frac{\text{Current Year Price Index}}{\text{Base Year Price Index}} \quad \Rightarrow \quad \text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Deflator}}$$

Therefore to calculate real GDP, nominal GDP would be multiplied by inverse of deflator, i.e.,

$$\text{Real GDP} = \text{Nominal GDP} \times \frac{1}{\text{deflator}} = \frac{\text{Base Year Price Index(1990)}}{\text{Current Year Price Index(2000)}}$$

Hence D is correct option.

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10. B

$$\text{Deflator} = \frac{\text{Current Year Price Index}}{\text{Base Year Price Index}} \quad \Rightarrow \quad \text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Deflator}}$$

Using them

$$\text{Deflator} = \frac{150}{100} = 1.5 \quad \Rightarrow \quad \text{Real GDP} = \frac{3000}{1.5} = 2000\,\text{m}$$

11. A

Real GNP per head can be calculated by following formula.

$$\text{Deflator} = \frac{\text{Current Year Price Index}}{\text{Base Year Price Index}}$$

$$\text{Real GNP} = \frac{\text{Nominal GNP}}{\text{Deflator}}$$

$$\text{Real GNP per head} = \frac{\text{Real GNP}}{\text{Population}} = \text{Nominal GNP} \div \text{Population} \div \text{Deflator}$$

The table shows the data relating to Real GNP per capita.

country	GNP (local currencies)		population (thousands)		prices (1994 = 100)	Deflator		Real GNP per capita = GNP ÷ Population ÷ Deflator	
	1994	**2004**	**1994**	**2004**	**2004**	**1994**	**2004**	**1994**	**2004**
1	5 000	18 000	5 000	5 500	300	100y100=1	300y100=3	5000y5000y1=**1**	18000y5500y3=**1.09**
2	10 000	20 000	3 000	3 300	200	100y100=1	200y100=2	10000y300y1=**3.3**	20000y3300y2=**3.03**

Hence real GNP per capita rose in country 1 but fell in country 2.

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13.3 Methods of measuring national income

1. O/N 15/P31/Q18, O/N 12/P33/Q17

The table shows data on a country's gross domestic product (GDP) at market prices and on domestic spending.

	year 1 ($m)	year 2 ($m)	year 3 ($m)
GDP at market prices	630	650	680
private consumption	460	470	480
government consumption	140	160	170
gross investment	20	30	50

In which of these years will the country be faced with a balance of trade deficit?

	year 1	year 2	year 3
A	no	no	yes
B	yes	yes	no
C	no	yes	yes
D	yes	no	no

2. O/N 14/P33/Q19, M/J 11/P32/Q13

The table shows data on a country's gross national product at market prices and on domestic spending.

	year 1 ($m)	year 2 ($m)	year 3 ($m)
GNP at market prices	420	440	560
private consumption	200	260	300
government consumption	120	120	140
gross investment	90	80	130

In which of these years will the country be faced with a deficit on the current account of the balance of payments?

	year 1	year 2	year 3
A	no	yes	yes
B	no	yes	no
C	yes	no	yes
D	yes	no	no

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3. M/J 08/P3/Q18

The table shows data on a country's gross domestic product at market prices and on domestic spending.

	year 1 ($m)	year 2 ($m)	year 3 ($m)
GDP at market prices	630	650	680
private consumption	480	470	480
government consumption	160	160	150
gross investment	20	30	40

In which of these years will the country be faced with a balance of trade deficit?

	year 1	year 2	year 3
A	no	no	yes
B	yes	yes	no
C	no	yes	yes
D	yes	no	no

4. O/N 06/P32/Q17

The table shows data on a country's gross national product at market prices and on domestic spending.

	year 1 ($m)	year 2 ($m)	year 3 ($m)
GNP at market prices	400	480	560
private consumption	200	260	300
government consumption	120	120	140
gross investment	90	80	130

In which of these years will the country be faced with a deficit on the current account of the balance of payments?

	year 1	year 2	year 3
A	✓	✗	✗
B	✗	✓	✓
C	✓	✗	✓
D	✗	✓	✗

The information in the table is taken from a country's national income accounts.

	$ million
national income	1000
consumer spending	750
investment spending	100
government spending on goods and services	170
taxation	110
imports	120

What is the value of exports?

A $100 million **B** $120 million **C** $190 million **D** $210 million

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6. O/N 09/P32/Q15

The information in the table is taken from a country's national income accounts.

	$ million
national income	600
consumer spending	400
investment spending	80
government spending on goods and services	100
taxation	90
imports	120

What is the value of exports?

A $100 million **B** $120 million **C** $140 million **D** $230 million

7. M/J 05/P3/Q16

The information in the table is taken from a country's national income accounts.

	$ million
national income	500
consumer spending	200
investment spending	75
government spending	150
taxation	140
exports	125

What is the value of imports?

A $125 million **B** $75 million **C** $50 million **D** $25 million

8. O/N 07/P3Q18, O/N 04

Which of the following will directly result in an increase in China's Gross National Product?

A increased wages earned in a Malaysian-owned factory in China

B increased imports of goods and services

C increased outflows of net property income

D increased taxes on domestic expenditure

9. M/J 04/P3/Q16

A country's national income per head falls, but there is a rise in consumption.
What could explain this?

A a decrease in the net property income from abroad

B a fall in population

C an increase in the trade deficit

D a rise in negative externalities

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Answers Section

1. C

Trade deficit occurs when imports are greater than exports and their difference is negative.

	Year 1 ($m)	Year 2 ($m)	Year 3 ($m)
GDP at market price	630	650	680
C	460	470	480
G	140	160	170
I	20	30	50
C+G+I	460+140+20=620	470+160+30=660	480+170+40=700
X-M=GDP - (C+G+I)	630-620=+10	650-660=-10	680-700= -20
Trade deficit	×	✓	✓

2. A

Trade deficit occurs when imports are greater than exports and their difference is negative.

	Year 1 ($m)	Year 2 ($m)	Year 3 ($m)
GNP at market price	420	440	560
C	200	260	300
G	120	120	140
I	90	80	130
C+G+I	200+120+90=410	260+120+80=460	300+140+130=570
X-M=GNP - (C+G+I)	420-410=+10	440-460=-20	560-570=-10
Trade deficit	✓	✓	✓

3. B

Trade deficit occurs when imports are greater than exports and their difference is negative.

	Year 1 ($m)	Year 2 ($m)	Year 3 ($m)
GDP at market price	630	650	680
C	480	470	480
G	160	160	150
I	20	30	40
C+G+I	480+160+20=660	470+160+30=660	480+150+40=670
X-M=GDP - (C+G+I)	630-660=-30	650-660=-10	680-670=+10
Trade deficit	✓	✓	×

4. C

Trade deficit occurs when imports are greater than exports and their difference is negative.

	Year 1 ($m)	Year 2 ($m)	Year 3 ($m)
GNP	400	480	560
C	200	260	300
G	120	120	140
I	90	80	130
C+G+I	200+120+90=410	260+120+80=460	300+140+130=570
X-M=GNP - (C+G+I)	400-410=-10	480-460=+20	560-570=-10
Trade deficit	✓	×	✓

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5. A

From the statement

Y = $ 1000m C= $ 750m I = $ 100m G= $170 M = $120

Y = C+I+G+X-M ⇒ X - M = Y - (C+I+G)

X = Y - (C+I+G) + M= 1000 - (750+100+170) +120= $100

6. C

From the statement

Y = $ 600m C= $ 400m I = $ 80m G= $100 M = $120

Y = C+I+G+X-M ⇒ X - M = Y - (C+I+G)

X = Y - (C+I+G) + M= 600 - (400+80+100) +120= $140

7. C

As per statement

Y = $ 500 m C= $ 200 m I = $ 75m G= $ 150m X=$125m

As Y= C+I+G+X-M

500=200+75+150+125-M

M= 550 – 500

M= $50m

8. A

China's GDP can be increased only according to option A. An increase in wages in a factory in China will lead to an increase in the GDP of country. B, C and D options all will lead to withdrawals and decrease the GDP.

9. C

As

National Income = C + I + G × (X –M)

The reason for falling of National Income per head can be due to decrease in fall of any of the components mentioned above. If consumption is increased with a fall in national income per head, this means that the increase in consumption out weighted the increased imports leading to trade deficit and overall decrease in national income. Hence option C is the right choice.

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Unit 14 Economic growth & development

14.1 Meaning of economic growth

1. M/J 16/P33/Q20

The table shows real GDP per head measured in $US for countries X and Y over a three year period.

country	2011	2012	2013
X	100	110	121
Y	200	210	231

What can definitely be concluded from the data?

A Each country had the same rate of economic growth between 2011 and 2012.

B Growth in real GDP per head was higher in country X than in country Y between 2011 and 2012.

C Population growth was higher in country X than in country Y between 2012 and 2013.

D The average price level was higher in country X than in country Y throughout the period.

2. O/N 12/P33/Q24

How can cyclical growth, as opposed to long-run economic growth, be shown on a diagram?

A an inward shift in a production possibility curve

B an outward shift in a production possibility curve

C a movement from a point inside a production possibility curve to a point on the curve

D a movement from a point outside a production possibility curve to a point on the curve

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Answers Section

1. B

$$\text{Economic growth rate} = \frac{GDP_2 - GDP_1}{GDP_1} \times 100$$

country	2012	2013
X	$\frac{110-100}{100} \times 100 = 10\%$	$\frac{121-110}{110} \times 100 = 10\%$
Y	$\frac{210-200}{200} \times 100 = 5\%$	$\frac{231-210}{210} \times 100 = 10\%$

Hence, growth in real GDP per head was higher in country X than in country Y between 2011 and 2012. However it was same between 2012 and 2013 in both countries.

2. C

Cyclical growth can be shown by AD shift, movement in trade cycle or movement of point from below to on the production possibility curve.

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14.2 Actual versus potential growth

1. O/N 15/P31/Q24

Between 2012 and 2014 a country's national output fell by 2%.
Over the same period its unemployment rate decreased from 6% to 4%.
What could explain this?

A There was a decrease in labour productivity.

B There was a fall in the rate of inflation.

C There was an increase in the long-term potential rate of growth.

D There was an increase in the size of the labour force.

2. O/N 14/P14/Q29

In which set of circumstances is an economy likely to experience both falling inflation and, at the same time, falling unemployment?

	unemployment	actual growth rate in output
A	above the natural rate	above long-term trend rate of growth
B	above the natural rate	below long-term trend rate of growth
C	below the natural rate	above long-term trend rate of growth
D	below the natural rate	below long-term trend rate of growth

3. O/N 14/P32/Q26

Real output in an economy grows by 2.5% but at the same time the level of employment decreases.
What can be deduced from this information?

A Actual output has grown more quickly than potential output.

B Labour productivity has increased.

C Population of working age has fallen.

D There has been an increase in the rate of inflation.

4. O/N 13/P32/Q17

What might cause the growth of measured GNP to overstate the 'true' rate of economic growth in an economy?

A People move from unpaid housework to paid employment.

B The exchange rate is overvalued according to purchasing power parity.

C There is a reduction in environmental pollution.

D There is a reduction in the rate of investment in physical capital.

5. M/J 12/P32/Q28, O/N 14/P14/Q26

The number of people employed in a country and the level of unemployment both decrease.
What could explain this?

A net inward immigration

B an increase in the level of unemployment benefits

C an increase in the age at which state pensions are payable

D an increase in the number of students

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6. O/N 12/P33/Q25

In the long run, productive potential in an economy grows at an average rate of 3 % per year. In a particular year actual growth is zero because of a fall in domestic consumption.
What is likely to occur?

A an increase in unemployment

B an increase in the rate of inflation

C an increase in the trade deficit

D a reduction in the government budget deficit

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Answers Section

1. A
National output depends upon employment of resources and labour productivity. If unemployment rate fell then there should be an decrease in labour productivity to out weight the effect of unemployment fall so that there is an overall decrease in national output.

2. A
In short run unemployment may fall below the natural rate of unemployment but eventually in long run increases and restores to natural rate of unemployment. Moreover, unemployment will increase if actual growth rate is below the long term trend rate of economic growth.

3. B
Real output growth refers to actual output increase by stripping out the effect of inflation. Option A cannot lead to a lower employment in the country, in fact it may lead to the opposite. If the output increase is solely due to a more productive labor then that explains why despite a higher output employment has fallen. This is because firms don't have to hire more workers to produce more since existing workers are more productive. So option B is correct. The fall in working age population does not explain how the economy is able to produce more without hiring more. Real output does not take into account inflation.

4. A
GNP accounts for the final value of all goods and services produced by citizens of a country. People moving to paid employment will be recorded in GNP calculations whilst those involved in self-service activities are not included. However self-service tasks such as repairing a chair or house chores are all services that could be included in GNP if someone else performs them. So even though GNP will show a lot more production, theoretically there is only a shift in production from self-service tasks to paid employment. So option A is correct .Even if the exchange rate is overvalued, there is no way to assess what the how the GNP might overstate the 'true' rate of economic growth. A reduction in pollution is actually good for the society, so in this case GNP will be understating economic growth or development. A reduction in investment rate will be shown in GNP so this will not result in overstatement of economic growth.

5. D
A net inward immigration means more people entering the country and also implies the labor force increasing as well. If the labor force increases, then a fall in the number of people employed suggests that unemployment rate should increase. An increase in unemployment benefits means more people staying means less people working at jobs since it is better to stay unemployed but since they are still part of the labor force, if more people are unemployed then the unemployment rate goes up. An increase in age at which pensions are payable means people have to now work for longer but this does not explain the current trend observed. An increase in students means that although the students are part of the working population but since they are not part of the labor force so even if less people are employed since the size of the labor force has fallen, the unemployment rate can still fall down. So option D is correct.

6. A
Effect of actual and potential growth on employment and unemployment can be summarised in the following table.

If	Employment	Unemployment
Only actual growth rate (AGR)	increase	decrease
only potential growth rate (PGR)	unchanged	increase
Both but AGR=PGR	increase	unchanged
Both but AGR>PGR	increase	decrease
Both but AGR<PGR	increase	increase

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14.3 Factors contributing to economic growth

1. O/N 15/P33/Q22

The table shows the figures for consumption, gross capital formation and depreciation in four economies, all measured in US $.

Assuming that the state of technology remains unchanged, which economy is most likely to experience economic growth?

economy	consumption ($ million)	gross capital formation ($ million)	depreciation ($ million)
A	200	40	50
B	500	200	150
C	1 000	1 200	1 400
D	20 000	6 000	6 000

2. O/N 15/P33/Q23

What is likely to decrease a country's actual output in the short run but may increase its long-run rate of growth of potential output?

A a decrease in the proportion of 18-25 year olds in higher education

B a decrease in the size of the government's budget deficit

C an increase in the size of the labour force

D increased female participation in the labour force

3. M/J 15/P33/Q26

Why may an economy experience an increase in potential economic growth despite net investment remaining unchanged?

A Capital consumption exceeds net investment.

B Net investment exceeds gross investment.

C The new capital equipment embodies more advanced technology.

D The new capital equipment is longer lasting than the capital equipment it replaces.

4. O/N 14/P14/Q24

What would be most likely to increase a country's long-run trend rate of growth?

A an appreciation of the currency

B an increase in import tariffs

C an increase in the money supply

D a reduction in the ratio of Government Debt to GDP

5. M/J 14/P31/Q23

Assuming a constant income velocity of circulation of money, if real output grows by 2%, and the rate of growth of the money supply is 5%, what will be the approximate change in the price level?

A –3% **B** +3% **C** +5% **D** +7%

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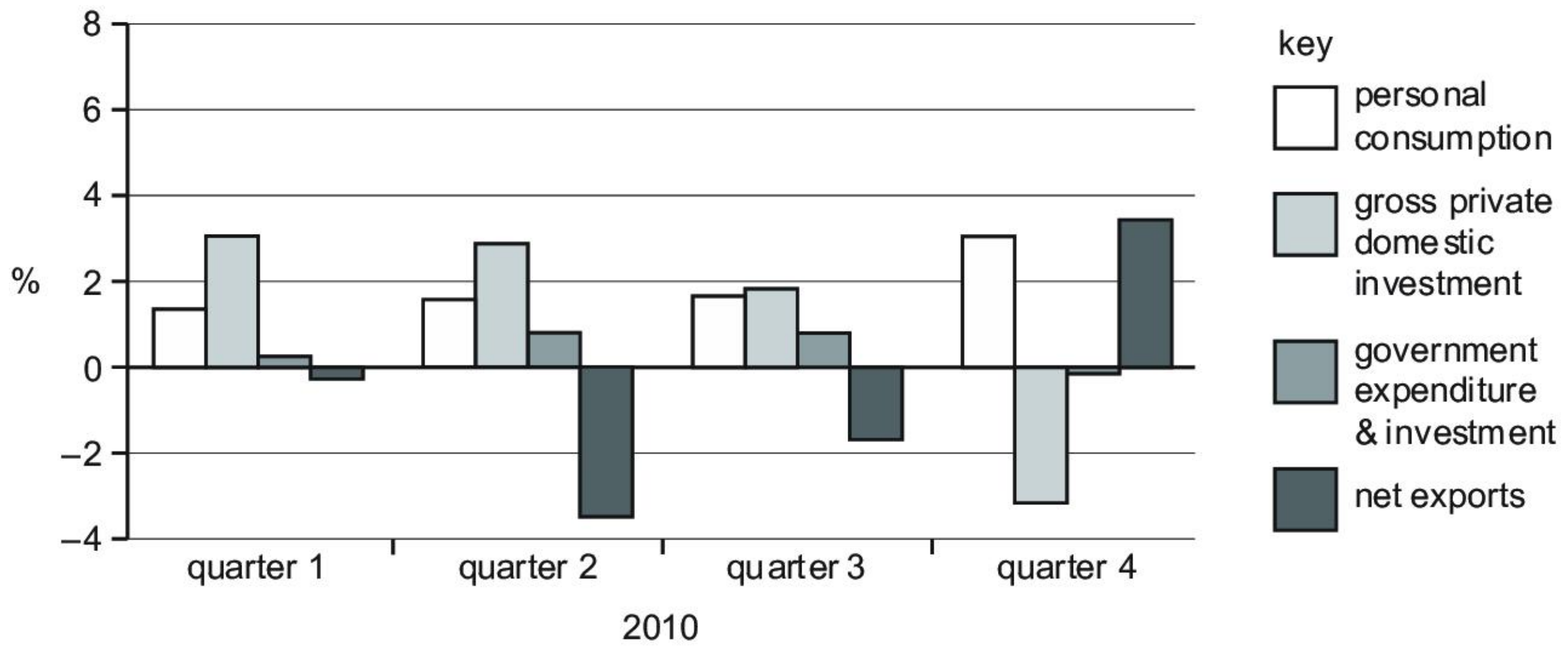
6. M/J 14/P32/Q22

The diagram shows the contribution of four components of aggregate demand to the change in US real GDP in the four quarters of 2010.



Which component made the greatest contribution and which component the least contribution to the positive growth in real GDP in 2010?

	greatest contribution	least contribution
A	gross private domestic investment	government expenditure and investment
B	gross private domestic investment	net exports
C	personal consumption	government expenditure and investment
D	personal consumption	net exports

7. M/J 14/P32/Q23

An economic recession leads to an increase in unemployment.
Why might this cause a fall in an economy's long-term growth rate?

A It is impossible to regain consumption lost in recession.
B Rising unemployment is likely to raise real wage levels.
C Social attitudes become less accepting of unemployment.
D There will be a harmful effect on human capital.

8. O/N 14/P33/Q24

What is most likely to cause a decrease in a country's long-run rate of economic growth?

A an ageing population
B increased inward migration
C a decrease in the government's budget deficit
D a decrease in the share of agriculture in the country's GDP

9. O/N 13/P32/Q22

What is most likely to contribute to high long-term growth rates of GNP per head?

A government imposition of maximum prices for particular goods
B high rates of trade union membership amongst the labour force
C high ratios of saving to GNP
D restrictions on inward foreign investment

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10. O/N 13/P32/Q25, O/N 08/P32/Q25

What would increase an economy's actual output but not its potential output?

A an increase in the capital available to the labour force

B an increase in the labour force's skill level

C an increase in the number in the labour force

D an increase in the proportion of the labour force employed

11. M/J 13/P32/Q25

What would be most likely to stimulate long-run growth in an economy?

A employment protection legislation

B government policy to raise aggregate demand

C technical innovations by firms

D the development of trade unions

12. O/N 13/P33/Q26

Why is a high ratio of government debt to GDP likely to cause a decline in a country's economic growth?

A Higher taxes to pay the interest charges on the debt will reduce the country's money supply.

B It will cause the growth in actual output to fall behind the country's long-term rate of growth.

C It will increase the cost of borrowing to both the government and the private sector.

D It will weaken the country's competitiveness by increasing unit labour costs.

13. O/N 12/P31/Q23

What is most likely to lead in the long run to an increase in world real GDP per head?

A faster population growth

B trade liberalisation

C a lower propensity to save

D faster growth of the money supply

14. M/J 12/P31/Q25

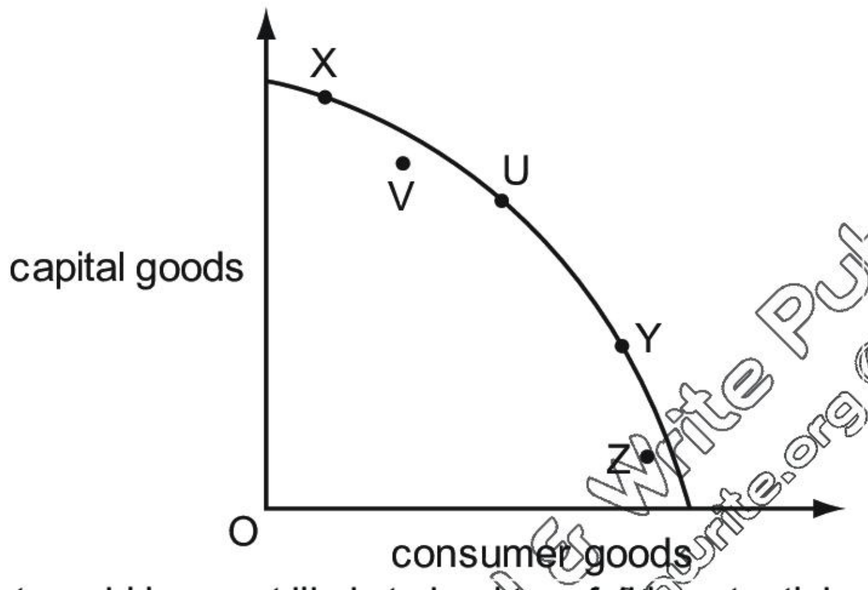
The table shows the figures for consumption, capital formation and depreciation in four economies, all measured in US $.

Assuming that the state of technology remains unchanged, which economy is most likely to experience economic growth?

	consumption ($ m)	Capital formation ($ m)	depreciation ($ m)
A	100	20	30
B	500	200	200
C	1 000	1 400	1 200
D	20 000	5 000	6 000

15. O/N 12/P32/Q23, M/J 15/P32/Q26

The diagram shows a country's production possibility curve and a number of alternative production points.



Which change in the country's output would be most likely to lead to a fall in potential growth?

A U to V **B** U to X **C** Y to X **D** Y to Z

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16. O/N 12/P32/Q26

What will assist a country's potential growth in national output?

A an increase in cyclical unemployment

B an increase in the rate of inflation

C an increase in the government's budget deficit

D increased participation in the labour force

17. M/J 12/P32/Q27, M/J 15/P31/Q22

What will be most likely to decrease a country's national output in the short run but to increase its potential for long-run growth?

A a decrease in the level of import tariffs

B a decrease in the rate of immigration

C an increase in female participation in the labour force

D an increase in the money supply

18. O/N 11/P31/Q24, O/N 11/P33/Q23

Why are high and variable rates of inflation likely to be harmful to long-run economic growth?

A They hide relative price changes leading to a mis-allocation of resources.

B They increase the real burden of household debt leading to lower consumption.

C They lead to an increase in the household saving ratio.

D They result in an increase in real interest rates.

19. O/N 10P32/Q25

What is likely to be the effect of a fall in oil prices on the global economy?

A a decrease in the rate of economic growth

B a decrease in unemployment

C a strengthening of cost-push inflation

D a weakening of demand-pull inflation

20. O/N 09/P32/Q26

What is most likely to be the impact on economic growth and on the rate of inflation in developed economies of an inflow of migrant labour from developing economies?

	impact on economic growth	impact on rate of inflation
A	increase	increase
B	increase	decrease
C	decrease	increase
D	decrease	decrease

21. M/J 09/P32/Q26

Which combination of factors is most likely to result in more rapid economic growth?

A increases in employment and in the balance of payments deficit

B increases in the level of investment and in the size of the working population

C more equal distribution of wealth and a higher level of unemployment benefits

D more rapid inflation and an increase in the national debt

22. M/J 07/P3/Q25

What will be most likely to decrease a country's national output in the short run but to increase its potential for long-run growth?

A a decrease in the level of import tariffs

B a decrease in the rate of immigration

C an increase in female participation in the labour force

D an increase in the money supply

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23. O/N 06/P3/Q28

What would be most likely to result in an increase in an economy's long-run rate of growth of potential output?

A an appreciation of the currency.
B an increase in interest rates.
C an increase in the government's budget deficit.
D an increase in the level of private investment.

24. M/J 06/P3/Q26

What is most likely to lead in the long run to an increase in world real GDP per head?

A faster population growth
B trade liberalisation
C a lower propensity to save
D faster growth of the money supply

25. M/J 05/P3/Q25

What will assist a country's potential growth in national output?

A a reduction in cyclical unemployment
B an increase in the rate of inflation
C an increase in the government's budget deficit
D increased participation in the labour force

26. M/J 04/P32/Q25

Between 2000 and 2002 national output in the United States increased by 2%.
Over the same period the unemployment rate increased from 4% to 6%.
What would explain this?

A There was a decrease in labour productivity.
B There was a decrease in the size of the labour force.
C There was a fall in the rate of inflation.
D Potential growth in national output was above actual growth.

27. O/N 03/P3/Q26

The table shows the figures for consumption, capital formation and depreciation in four economies, all measured in US$.
Assuming that the state of technology remains unchanged, which economy is most likely to experience economic growth?

economy	consumption ($ m)	capital formation ($ m)	depreciation ($ m)
A	100	20	10
B	500	200	200
C	1 000	1 200	1 400
D	20 000	5 000	6 000

28. M/J 03/P3/Q28

Real output in an economy grows by 1.5% but at the same time the level of unemployment increases.
What can be deduced from this information?

A Labour productivity has decreased.
B Actual output has grown more slowly than potential output.
C Population of working age has fallen.
D There has been an increase in the rate of inflation.

29. O/N 02/P3/Q29

Which of the following is most likely to lead increase in a developing country's long-run rate of growth of income per head?

A a higher birth rate.
B a higher saving ratio.
C the imposition of import controls.
D an increased in government spending on defense.

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30. M/J 02,M/J 06/P3/Q27, O/N 11/P31/Q21, O/N 11/P33/Q20

What is likely to increase a country's actual output but may reduce its long-run rate of growth of potential output?

A an increase in the size of the labour force

B increased government spending on education

C an increase in the size of the government's budget deficit

D increased female participation in the labour force

31. O/N 01/P3

Which of the following is most likely to increase's long-run economic growth?

A an increased in the money supply.

B an increased in the rate of interest.

C an appreciation of the currency.

D inward investment by foreign firms.

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Answers Section

1. B
2. B
3. C
4. D
5. B
6. D

Observing the graph it can be seen that only personal consumption remained positive throughout the year. Hence, it can be concluded that personal consumption made the greatest contribution towards growth in real GDP. Net exports by contrast, were negative in 3 quarters of the year 2010 and therefore made the least contribution towards growth. So option D is correct.

7. D

It is not impossible to regain consumption lost in recession; By introducing the necessary reforms along with expansionary monetary and fiscal policy, an economy could be put back towards real growth. Once the economy starts to grow, it will only be a matter of time before all consumption that was lost will be regained. Rising unemployment will put firms in a better position when negotiating the wage rate and with so many people unemployed, increase in nominal wages will barely keep up with inflation. So real wage levels are likely to fall in case of a recession. In a recession, with so many people in a region who are unemployed, the society begins to be more accepting towards them, not the other way round. People who will unemployed for several months will become unproductive and even when they return back to their jobs they will not be as efficient at their tasks as they used because they were made redundant. Since human capital or labor becomes less productive then the economy's long-term growth rate will fall, option D is correct.

8. A
9. C

The first two options are examples of policies and actions that cause inefficiencies in the market and will distort the market equilibrium. Although a price ceiling may benefit consumers and trade membership may improve wages for workers, this does not help in helping a country achieve high long-term growth rates. A high savings ratio translates into higher investment into the economy, which will drive up capital and potential GDP in the country; thus, higher growth in GNP per head. So option C is correct .Restrictions on inward investment will harm the economy instead of helping it.

10. D

An increase in the capital available to labor means the country's potential to produce has increased so this option also raises potential output. Improved skill level means a more productive workforce and this increases both potential and actual output. Similarly an increase in the labor force may help the economy to raise its potential and actual output. An increase in the proportion of labor employed means that economy is utilizing more of its labor force to raise output, but it's potential output remains the same; since it is using more of its resources it is increasing its actual output.

Rationale 2

As observed by the charts, there is negative relation between unemployment and growth rate.

11. C

Employee protection legislation will help in ensuring the safety and health of workers but not in improving long-run growth. Government policy to raise aggregate demand will help the economy grow in the short run. Technical innovations by firms will allow the economy to produce more goods & services, thus helping it grow in the long run, so option C is correct. Trade unions operate to protect the right of its members, such as better payment, health insurance, etc.

12. C
13. B
14. C

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15. D

Moving from point U to V results in producing less consumer goods but more capital goods. So it is unlikely that this will result in a lower potential growth rate, since capital goods are primarily responsible for potential growth. U to X and Y to X, both result in the economy increasing units of capital goods. So an increase in production of capital goods increases potential growth. Only in option D where point Z has fewer capital units there are most chances of a fall in the potential growth rate.

16. D

Potential output mainly depends on supply related factors. Potential output is the maximum output an economy can produce when it is utilizing all resources efficiently and fully. Only in option D will the size of labour force increase helping the economy's potential growth rate to increase because more workers means the economy will be able to produce more over time. The other three factors only effect the economy's actual output.

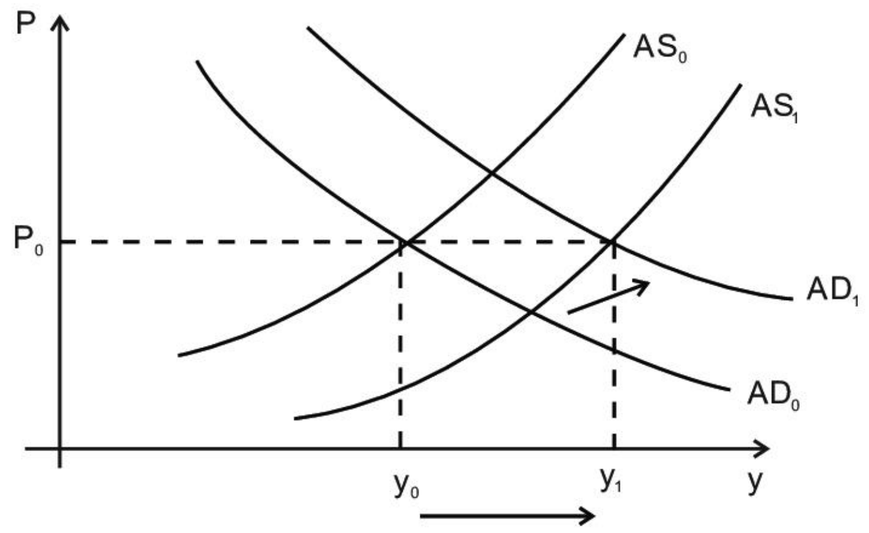
17. A

A reduction in import tariffs would mean lower import prices which make domestic goods uncompetitive. Although a lot of inefficient firms will shut down, a few firms may become leaner and more efficient leading to a better position to compete against them, thus they will be able to grow and produce more in the long run. So the nation's output will fall in the short run because of the influx of cheap imports but in the long run more efficient firms will emerge helping the country to compete on a global scale. The fall in rate of immigration means less people entering the country and although this improves the long run potential, it reduces the country's national income in the short run. An increase in money supply does not increase long-run growth.

18. A

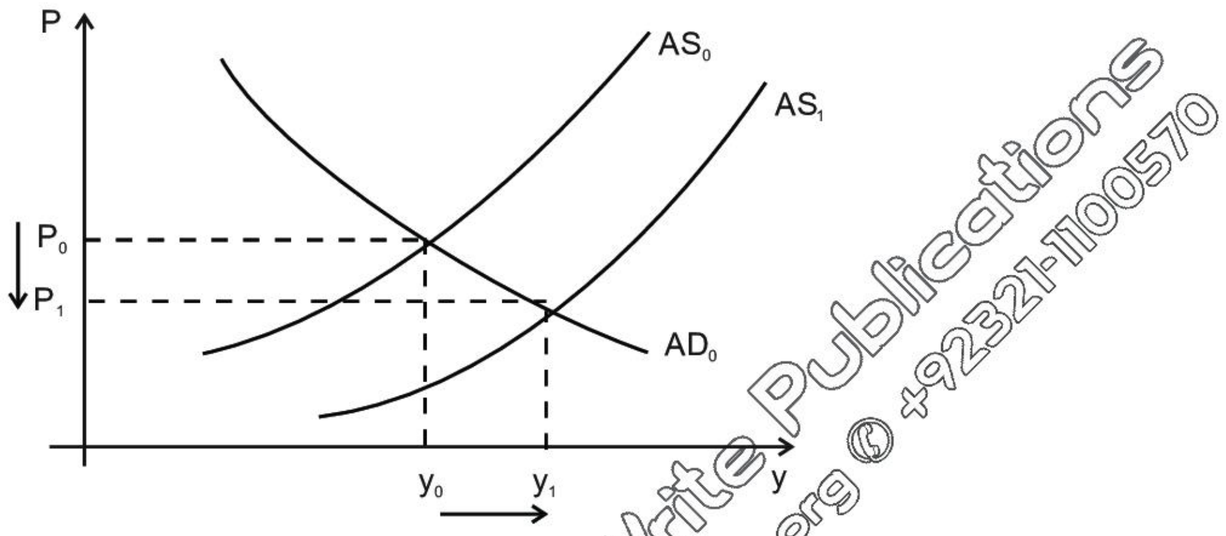
19. B

Greater investment leads to rise in aggregate demand whereas greater working population increases aggregate supply. The combination of two will lead to greater rise in GDP and more economic growth.



20. B

Increase in migrant labour will increase the aggregate supply which will reduce cost push inflation and increase the GDP and lead to economic growth. The diagram explains it below as well.



21. D

An increase in proportion of labour force employed will produce goods and services and increase the GDP of the country. The population remains same because the new working people were considered unemployed before. So the overall population will not be affected. Hence GDP per head rises. So this will increase actual output only.

22. D

An increase in investment with raise the potential of country in long run. Rest of other options will affect GDP in short run only.

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23. B
In long run, trade liberalization leads to greater international trade and leads to overall world economic growth according to comparative advantage theory. Faster population growth and lower saving propensity will decrease world supply whereas change in money supply is a short term policy.

24. A
If potential growth is lesser than actual growth rate, gap between current and potential GDP shrinks leading to increased employment along-with reduction in unemployment.

25. D
Increased participation of labour force increases the aggregate supply in the long run. Hence potential growth of GDP increases.

26. D
If actual output grows more slowly than potential output, gap between current and potential GDP increases, which leads to increase in unemployment.

27. A
Economic growth is likely to occur when capital formation is greater than depreciation. Among four options, only in A, Capital formation ($20m) is greater than depreciation ($10m).

28. B
If actual output grows more slowly than potential output, gap between current and potential GDP increases, which leads to an increase in unemployment.

29. B
A higher saving ratio raises the aggregate supply of the country and lead to higher national income, GDP and economic growth in the country.

30. C
An increase in the size of government's budget deficit means that government spending will be greater than taxes in short run. So the real GDP increases and economic growth occurs. However, in the long run, the government will have to rely on loans and aids to finance the spending due to lesser tax revenue and so foreign reserves decrease and lead to decrease in potential GDP. Hence, long run rate of economic growth decreases.

31. D
An inward investment by foreign firms will increase aggregate supply and the national income and real GDP of the country and hence lead to economic growth. Option 'A' will cause a rise in AD but a short run growth while option B and C will reduce the AD as well as GDP.

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14.4 Costs and benefits of growth

1. M/J 15/P32/Q25

An economy is experiencing economic growth.
What will be the effect on its rate of inflation, level of unemployment and current account surplus?

	rate of inflation	level of unemployment	current account surplus
A	lower	lower	lower
B	raise	lower	raise
C	raise	raise	uncertain
D	uncertain	uncertain	uncertain

2. M/J 15/P33/Q25

A country has a high ratio of investment to GDP and rapid economic growth.
If the net capital inflow from abroad is zero, what will be a necessary cost of such growth?

A an increase in taxation
B increased consumption of luxury goods by richer residents
C increased imports of goods from abroad
D the sacrifice of present consumption by residents of the country

3. M/J 14/P32/Q26

It is often argued that the present rate of economic growth will soon lead to the exhaustion of reserves of material resources, such as minerals and oil.
What does this argument fail to take into account?

A the drawbacks of present GDP levels as an indicator of the 'happiness of the population
B the effect of increasing resource prices on the discovery and exploitation of new reserves
C the right of future generations to enjoy present standards of living
D the role of education in economic development

4. M/J 11/P32/Q21

Which cause of economic growth would involve the least cost for present and future generations of a country's population?

A increased exploitation of a country's mineral resources
B investment financed by borrowing from abroad
C investment financed by high rates of domestic savings
D technological innovations in productive processes

5. O/N 10/P32/Q26

What is an unavoidable cost of long-run economic growth?

A an increase in inflation
B an increase in the working hours of the population
C a sacrifice of potential present consumption
D greater inequality in the distribution of income

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Answers Section

1. D

Inflation will increase if economic growth is caused by rise in aggregate demand but will fall if caused by an increase in aggregate supply, therefore uncertain. Level of unemployment depends upon whether growth is actual or potential but we lack this information and therefore uncertain. Economic growth may be happening in exports industries and may also increase imports due to higher incomes and therefore we will be uncertain about current account effect. Hence D is the correct answer.

2. D

In a simple 2-sector economy:

$$Y = C + I$$

An increase in investment leads to economic growth but will also lead to fall in current consumption.

3. B

The statement simply states the impact of present economic growth on the level of material resources present. It does not talk about whether GDP is or is not an indicator for level of 'happiness' so option A is wrong. As resources become scarce, market forces will react by increasing prices so consumption will fall and firms will produce only enough output for profits to remain sustainable. So option B is correct option C and D also do not refer directly to the statement,

4. D

Technological innovations in manufacturing sector improve the productivity of the country in long run. It will allow the developing country to become technologically progressive and allow it to transform its structure from primary to secondary. Among other options, A will worsen the economy and B and C are only short term solutions.

5. C

In order to achieve long run growth, there must be an increase in investment and it can be only done with fall in current consumption because, for example, in 2-sector economy:

$$Y = C + I$$

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14.5 Standard of living

1. M/J 16/P32/Q19
What would cause estimates of the money value of the 'Measure of Economic Welfare' for a country to be greater than the value of 'Gross National Product'?

A negative externalities such as pollution
B property income received from abroad
C regrettable necessities
D the value of non-marketed activities and leisure

2. M/J 16/P33/Q19, M/J 13/P31/Q14, M/J 13/P33/Q14
What adjustments to real GNP per head might make it a more reliable indicator when comparing standards of living in different countries?

A adjustments to allow for differences in the level of government spending in different countries
B adjustments to allow for differences in the rates of inflation in different countries
C adjustments to allow for differences in the size of the hidden economy in different countries
D adjustments to allow for differences in the value of exports from different countries

3. M/J 15/P33/Q27
It is often argued that the UN Human Development Index is a better indicator of economic development than income per capita because it adjusts for

A average hours worked by the population.
B environmental pollution.
C inequality in income distribution.
D life expectancy at birth.

4. O/N 14/P33/Q26
The Human Development Index (HDI) measures three dimensions of human development.
What is **not** included as one of these dimensions?

A access to knowledge
B a decent standard of living
C a long and healthy life
D equal economic opportunity

5. O/N 13/P31/Q17
How are the weights applied to the different indicators used to construct the United Nations' Human Development Index determined?

A by the amount a country falls short of the maximum value of each indicator
B by the proportion of GNP a country devotes to promoting each of the indicators
C by the relative importance attached to the different indicators by the United Nations
D by the relative size of each country's population

6. -O/N 13/P31/Q23
The table gives the growth rate of nominal GDP, the population growth rate and the rate of inflation in one year for four countries.
Which country had the greatest growth in average living standards?

	nominal GDP growth rate %	population growth rate %	rate of inflation %
A	6	1	3
B	8	2	4
C	10	3	4
D	15	3	10

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7. **O/N 16/P33/Q22, M/J 13/P32/Q17**
National income statistics show that real GDP per head is 25% higher in country X than in country Y.
Why might this difference exaggerate the gap in average living standards between the two countries?

A Country X has a larger population than country Y.
B Country X has a higher rate of inflation than country Y.
C The proportion of services people provide for themselves is higher in country Y.
D The proportion of the country's industry which is owned by foreign firms is higher in country Y.

8. **O/N 13/P33/Q23**
The World Bank publishes statistics on changes in the number of people in the world who live on less than US$1 per day.
What do these statistics measure?

A the change in average living standards
B the extent of poverty
C the level of economic development
D the rate of economic growth

9. **O/N 12/P33/Q23**
An economy's GDP per capita grows over a certain period of time, but its development when measured by the Human Development Index remains unchanged.
What could explain the difference?

A a decline in life expectancy
B an increased crime rate
C increased pollution
D shorter working hours

10. **M/J 12/P32/Q17, O/N 05/P32/Q21**
A government uses real personal disposable income per head as a measure of the standard of living. What does this measure **not** take into account?

A the distribution of income
B the level of national income
C the size of the population
D the average price level

11. **M/J 12/P33/Q16, M/J 07/P32/Q19, M/J 02**
What might make Gross National Product (GNP) per capita a misleading indicator when comparing living standards in different countries?

A differences between market exchange rates and purchasing power parity exchange rates
B differences in capital investment as a proportion of GNP
C differences in exports and imports as a proportion of GNP
D differences in net property income from abroad

12. **O/N 11/P32/Q16**
Which change would directly affect a country's Human Development Index?

A a change in average hours worked by the labour force
B a change in life expectancy of the population
C a change in the level of carbon dioxide emissions
D a change in the size of the population

13. **M/J 11/P32/Q20**
Which characteristics are usually found in developing countries?

	saving ratio	capital output countries
A	low	low
B	high	low
C	low	high
D	high	high

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14. **O/N 09/P32/Q25**
An economy's GDP per capita grows over a certain period of time, but its development when measured by the Human Development Index remains unchanged.
What could explain the difference?

A longer working hours
B increased pollution
C an increased crime rate
D a decline in life expectancy

15. **M/J 09/P32/Q15**
A country's national income per head increases.
What could explain why this is accompanied by a fall in households' standard of living?

A an increase in personal taxes
B an increase in the trade deficit
C an increase in population
D a rise in the exchange rate

16. **O/N 07/P3/Q24**
Between 2000 and 2004 Botswana experienced economic growth but there was a fall in its Human Development Index.
Which combination of events could explain this apparent paradox?

	aggregate demand	productive capacity	life expectancy
A	increase	increase	increase
B	increase	increase	decrease
C	decrease	decrease	increase
D	decrease	decrease	decrease

17. **O/N 04/P3/Q19**
A country's GDP declines but the welfare of its population rises.
What could explain this?

A a fall in leisure time
B a fall in the size of the subsistence sector
C a rise in positive externalities
D a rise in the size of the population

18. **O/N 01,M/J 10/P32/Q13, O/N 15/P31/Q16**
A government requires all its young citizens to undertake community service for a period of 6 months. The wages paid to those on the community services are below what they would otherwise have earned.
What effect will this have on recorded GDP and on national welfare?

	Effect on GDP	Effect on national welfare
A	reduction	increase
B	reduction	uncertain
C	unchanged	increase
D	unchanged	uncertain

19. **O/N 00/P3/Q21**
New regulations are introduced restricting number of flights from airport, so as to reduce noise levels.What effect will these regulations have on recorded real national income and on economic welfare?

	Effect on real national income	Effect on economic welfare
A	increase	unchanged
B	increase	uncertain
C	decrease	unchanged
D	decrease	uncertain

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20. **O/N 17/P32/Q21, O/N 91,M/J 96/P3/Q21**
To combat a rising crime rate, the government decides to recruit additional police officers who are paid a wage equal to that which they previously earned in the private sector.

As long as their previous jobs remain unfilled, what effect will the recruitment of the additional police officers have on national income and on economic welfare?

	Effect on national income	Effect on economic welfare
A	increase	unchanged
B	uncertain	decrease
C	unchanged	decrease
D	unchanged	uncertain

21. **M/J 99/P3**
The table shows real national income per head measured in US dollars for country X and Y.

country	$
X	15 000
Y	21 000

Why might these figures given an unreliable indication of living standards in country X compared with country Y?

A Country X has a large population.
B Inflation is higher in country Y.
C The exchange rate between country X and country Y does not reflect purchasing power of their two currencies.
D The $ value of country Y's currency is higher than that of country X.

22. **M/J 95,O/N 95,M/J 01/P32**
Why is real per capita net national product not a reliable indicator of the economic well-being of different countries?

A It takes no account of capital deprecation.
B It takes no account of differences in the average number of hours worked.
C It takes no account of property income from abroad.
D It takes no account of the size of the population in different countries.

23. **M/J 93/P3**
Why might published figures for national income per head of population at constant prices understate the true change in a country's average standards of living over a period of time?

A There was a decline in average hours worked.
B The population increased.
C The economy experienced inflation.
D There was an increase in population.

24. **O/N 14/P32/Q25**
Which change would cause an increase in a country's Human Development Index?

A a decrease in gender inequality
B a decrease in income inequality
C an increase in the mean years of schooling
D an increase in the retirement age

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Answers Section

1. D
The value of non-marketed activities and leisure raise economic welfare but are not included in GNP. Negative externalities are not included in GNP but they reduce economic welfare.

2. C
According to expenditure approach
GNP = C +I + G + X - M
Government spending and value of exports are already part of GNP therefore would not contribute anything more to make it reliable. Real mean rates of inflation are already adjusted. However, hidden economies are not part of GNP and adjustments to allow for differences in the size of the hidden economy in different countries will make real GNP per head more reliable measure of standard of living.

3. D
HDI consists of three indexes i.e., income index, education index and life expectancy index. Hence D is the correct option.

4. D
HDI consists of three indexes i.e., income index, education index and life expectancy index. Hence equal economic opportunity is not included in HDI.

5. C
Weight means relative importance. HDI consists of three indicators i.e., income index, education index and life expectancy index. Hence weights determine the relative importance attached to the different indicators.

6. C
A country with an increase in real GDP per head is likely to have an increase in standard of living.

	Real GDP per capita growth rate
A	6 -3 - 1 = + 2 %
B	8 - 4 - 2 = + 2 %
C	10 - 4 -3 = + 3 %
D	15-10-3 = + 2 %

7. C
Option A is incorrect since in calculations of real GDP per head, total GDP is divided by population, so it does not matter if one country has a higher population. Also real GDP takes into account the effect of inflation so option B also cannot be correct. If a higher proportion of people provide services to themselves in country Y, then that exaggerates the gap. Since self-service tasks are not included in GDP, and if the same service was performed by someone else then GDP of country Y would be much higher. So this exaggerates the gap, option C is correct. The average living standard does not change if industry is owned more by foreign firms.

8. B
According to world Bank standards any one who lives below than less than US$ 1 per day is considered absolutely poor. Hence it is related to poverty and correct answer is B.

9. A
The HDI includes life expectancy, real GDP per capita and average years spent in schools of the population. So only option A refers to a change that will directly affect one of HDI's components.

10. A
Income per head normally is calculated by dividing total income by total population, so distribution of income is not considered. Level of national income and size of population are used directly in the calculation. Note: since this is real disposable income, this figure also takes into account the average price level or the effect of inflation. So option A is correct.

11. A
Differences between market exchange rates and purchasing power parity exchange rates if not being taken care of, GNP figures may be misleading measure of standard of living.

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12. B
The HDI includes life expectancy, real GDP per capita and average years spent in schools of the population. So only option B refers to a change that will directly affect one of HDI's components.

13. A
Developing countries rely more on labour intensive techniques as capital requires high initial costs and forces unemployment of the unskilled workers. Which are predominant in developing countries. So a low capital to labour ratio exists.
Developing countries have to finance their government spending by taking aids, grants and debts due to low tax revenue. As people have low incomes, they tend to save less too. So there is low propensity to save.

14. D
Decrease in HDI can only be reflected by decrease in life expectancy which is one of key elements of HDI.

15. A
According to option A, taxes will decrease personal disposable income and hence decrease standard of living.

16. B
Increase in economic growth means the GDP rose. So aggregate demand will increase, reflecting rise in GDP. This will follow an increase in productive capacity as well. However decrease in HDI can only be reflected by decrease in life expectancy which is one of key elements of HDI.

17. C
The statement indirectly states that standard of living has arisen despite decrease in GDP. Positive externalities are not included in GDP; however they do lead to rise in standard of living.

18. B
As citizens are paid less wages in community services than what they would have earned otherwise. Therefore, there will be a reduction in GDP. Above said changes will increase the community services but will also decrease the other services they may have produced. Hence effect on national welfare is uncertain.

19. D
Restricting number of flights will reduce the total number of services provided in the economy which will reduce the GDP of the country. However economic welfare is affected by many factors such as leisure time, crime rate, population, inflation etc which may also have been affected and therefore effect on Standard of living is uncertain.

20. D
As the previous jobs remain unfilled the newly recruited police officers will not bring any change to national income of country because national income includes incomes of all sectors. Secondly, economic welfare is welfare affected by several factors. The effect of recruitment of police officers may reduce crime rate and may cause more corruption, burden over govt. Budget or may have contributed more in welfare in other jobs they were doing in private sector. Hence effect on welfare will be uncertain.

21. C
Real National Income per head includes the effect of inflation and population hence the effect of these two factors is excluded. US $ therefore option D cannot be concluded. Only option C remains as a conclusive evidence for unreliable indication of living standard in country X as compared to that in Y. As both incomes are expressed in US dollars therefore the purchasing power of the local currencies cannot be reflected.

22. B
Real per capital net national product accounts for inflation and population but it fails several other factors. On the most prominent among them is leisure time. Decrease in working hours while earning same income increases leisure time and the standard of living of a country.

23. A
Among all options, B, C and D are all accounted in national income per head. The only factor to affect standard of living at constant prices for national income per head is number of working hours. A reduction in working hours increases leisure time and hence standard of living.

24. C
The HDI includes real GDP per capita, literacy which includes average years of schooling and literacy rate and life expectancy. Only option C is a category of HDI.

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14.6 Economic development and classification of countries

1. M/J 16/P31/Q21
Which of the following are characteristics of most developing economies?

	ratio of government debt to GDP	average propensity to save
A	high	high
B	high	low
C	low	high
D	low	low

2. M/J 16/P31/Q22
Labour from developing countries often migrates to developed countries and finds jobs.
How would such a movement of labour be likely to affect the economic growth and the pressure on wage rises in the developed country?

	economic growth	pressure on wage rises
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

3. M/J 16/P32/Q21
Which combination is usually found in less developed economies?

	low	high
A	capital : output ratio	saving ratio
B	external debt	capital : output ratio
C	population growth	external debt
D	saving ratio	population growth

4. M/J 16/P33/Q21, M/J 13/P31/Q22, M/J 13/P33/Q22
Which combination is usually found in developing countries?

A a low birth rate and a dominant primary sector
B capital-intensive production and a rapidly growing population
C external debt and a low death rate
D labour-intensive production and a low rate of saving

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5. M/J 16/P33/Q22

The table refers to changes in the percentage age distribution in a developing country between 2012 and 2014. There has been no emigration or immigration in this period.

year	% of population in each age group		
	0 - 15 years	16 - 64 years	65 years and over
2012	25	60	15
2014	30	58	12

Between 2012 and 2014 what can be deduced?

A The average age of the total population has increased.

B The death rate has increased.

C The infant mortality rate has risen.

D The percentage of the dependent population has increased.

6. O/N 15/P31/Q22

Cuba, a developing country, achieves health and education standards as high as those found in leading developed countries. Yet, in 2005, its Human Development Index (HDI) value placed it 51st out of 177 countries surveyed.
What might have explained its HDI value?

A Cuba has a relatively high level of absolute poverty.

B Cuba has a relatively large population.

C Cuba has a relatively low GDP per head.

D Cuba has relatively few people with access to safe water.

7. O/N 15/P31/Q28

Which policy by developed economies would be most beneficial for developing economies?

A a ban on resource exploration by mining companies in developing economies

B restrictions on investment by global firms in developing economies

C the abolition of restrictions on immigration of skilled labour from developing economies

D the withdrawal of agricultural subsidies in developed economies

8. O/N 15/P31/Q23

Which characteristics are most commonly found in developing countries?

	saving ratio	capital-output ratio
A	low	low
B	high	low
C	low	high
D	high	high

9. M/J 15/P32/Q27

A developing country receiving foreign financial aid is most likely to experience economic growth in the long-run if it uses the money to

A boost welfare benefits for the poorest households.

B pay for imports of capital goods.

C reduce environmental pollution.

D reduce income tax for all households.

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10. M/J 15/P32/Q29

The data below relate to a particular country for the four years shown:

Year	1	2	3	4
real GNP / head (Year 1 = 100)	100	110	121	121
life expectancy at birth (years)	65	64	65	67
% of age group enrolled in secondary education	40	38	42	42

What can definitely be concluded from these data?

A Economic growth between Year 2 and Year 3 was 11%.

B The level of economic development was better in Year 2 than in Year 1.

C There was both economic growth and an improvement in economic development between Year 2 and Year 3.

D No conclusions can be drawn as to whether the level of economic development was better in Year 4 than Year 3.

11. O/N 15/P33/Q24

Why do economists draw a distinction between economic development and economic growth?

A because a country's stage of economic development depends on its level of output rather than its growth rate

B because it is the allocation rather than the overall level of a country's resources which determines its economic well-being

C because of the concern about quality of life rather than quantity of output

D because the prime determinant of economic development is investment rather than consumption

12. O/N 15/P33/Q30, M/J 09/P32/Q27, O/N 12/P32/Q27

How might a developing economy gain from a multilateral reduction in import tariffs and the removal by developed economies of subsidies on food exports?

A through increased specialisation leading to higher productivity

B through increased ability to protect infant industries

C through a reduction in the cost to the economy of imported food

D through increased tariff revenues

13. M/J 14/P31/Q28, O/N 11/P31/Q26, O/N 11/P33/Q25

What is likely to result from foreign direct investment in developing economies?

A a reduction in local wage levels

B a reduction in tax revenues in developing economies

C a reduction in the range of consumer goods available to the local population

D a worsening of net income flows from investments

14. O/N 14/P32/Q24

A developing economy experiences a rapid growth in labour productivity.
What is most likely to result from this?

A an increase in the country's balance of trade deficit

B an increase in the country's relative labour costs

C a depreciation of the country's currency

D an increase in real income per head

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15. M/J 14/P32/Q24

The table shows the annual income thresholds per person used by the World Bank to classify countries according to their nominal Gross National Income (GNI) in 2000 and 2010.

	2000	2010
low income	$755 or less	$1005 or less
lower middle	$756 to $2995	$1006 to $3975
upper middle	$2996 to $9625	$3976 to $12 275
high income	$9266 or more	$12 276 or more

What could explain the changes recorded in the table?

A Income inequality between countries increased between 2000 and 2010.

B On average, real GNI in low income countries increased by roughly one third between 2000 and 2010.

C On average, world prices increased by roughly one third between 2000 and 2010.

D Some of the countries in the upper middle income category in 2000 were re-classified as high income countries in 2010.

16. M/J 14/P32/Q25

What is likely to result in an increase in GDP per worker in a developing economy?

A an increase in the employment rate

B an increase in the population of working age

C a shift from working in subsistence agriculture to working in manufacturing

D a shift from working in manufacturing to working in subsistence agriculture

17. M/J 14/P32/Q30

A fair trade scheme encourages consumers in developed countries to buy food produced by farming cooperatives in developing countries at a higher price than that charged by commercial firms.

Why might this be harmful to economic development?

A It will cause a worsening in the terms of trade of developing economies.

B It will reduce the amount of government aid provided to developing economies.

C It will reduce the prices subsistence farmers receive for their produce.

D It will slow the process of economic diversification in developing economies.

18. M/J 13/P31/Q27

The table gives the percentage of employment in the primary, secondary and tertiary sectors in four countries.
Which country is most likely to be a developed country?

	primary sector %	**secondary sector %**	**tertiary sector %**
A	15	40	45
B	30	40	30
C	35	45	20
D	45	35	20

19. M/J 13/P32/Q23

The table gives the percentage of employment in the primary, secondary and tertiary sectors in four countries.
Which country is most likely to be a developing country?

	primary sector %	secondary sector %	tertiary sector %
A	15	40	45
B	30	40	30
C	35	45	20
D	45	35	20

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20. O/N 13/P32/Q15

What is most likely to contribute to households finding themselves in a poverty trap?

A means-tested benefits
B progressive taxation
C regressive taxation
D universal benefits

21. O/N 13/P33/Q16

Which combination is usually found in developing countries?

A a high birth rate and a dominant primary sector
B capital intensive production and a low rate of saving
C labour intensive production and a declining population
D net inward migration and a low death rate

22. O/N 13/P33/Q24

Which of the following are characteristics of most developing economies?

	government debt: GDP ratio	average propensity to save
A	high	high
B	high	low
C	low	high
D	low	low

23. O/N 13/P33/Q27

Which policy would be most likely to improve a country's prospects of achieving a higher long-run rate of growth?

A an increase in the government's budget deficit
B an increase in tuition fees charged to university students
C intervention in the foreign exchange market to raise the exchange rate
D the introduction of tax incentives to encourage households to save more

24. O/N 12/P31/Q24

Which government policy would boost economic growth but not necessarily promote economic development?

A creating a more equal distribution of income and wealth
B diverting government spending from industry to education
C encouraging the extraction of finite natural resources
D introducing tighter controls on air pollution

25. O/N 12/P31/Q29

Which action is consistent with a policy of 'trade not aid'?

A abolishing subsidies paid to producers in developed economies
B encouraging the activities in developing countries of non-governmental organisations (NGOs)
C limiting the activities of multinational companies (MNCs) from developed economies
D reducing the size of quotas on imports from developing countries

26. M/J 12/P32/Q25, M/J 16/P32/Q22

Which change is most likely to increase both economic growth and economic development in the long-run?

A a decrease in the savings ratio
B an increase in investment in human capital
C the depletion of non-renewable resources
D the greater use of compulsory overtime working of labour

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27. M/J 12/P33/Q26

How will outward migration from a developing economy affect its balance of payments?

A It may improve its balance of payments by increasing its export capacity.

B It may improve its balance of payments by increasing inflows of current transfers.

C It may worsen its balance of payments by causing its currency to depreciate.

D It may worsen its balance of payments by increasing consumer expenditure on imported goods.

28. O/N 11/P31/Q20, O/N 11/P33/Q19

What is typically associated with a relatively low level of income per capita in a country?

A a high rate of saving

B a low rate of economic growth in past periods

C a low rate of inflation

D a low rate of population growth

29. O/N 11/P31/Q25, O/N 11/P33/Q24

Economists have proposed that the best policy to promote development is 'trade not aid'.
What is implied by this proposal?

A Developing countries should become self-sufficient and not rely on aid.

B Developing countries should be given greater access to markets in developed countries.

C Developing countries should use foreign aid to invest in their export industries.

D Developing countries should use trade barriers to promote import substitution.

30. O/N 11/P32/Q28

What is **not** a valid economic argument for developing economies to pursue a policy of import substitution?

A to embark on industrialisation as a basis for export-led growth

B to exploit their relative abundance of labour in order to produce labour intensive manufacturing goods

C to increase the opportunities for exporting goods in which they already have a comparative advantage

D to reduce their dependence on a narrow range of primary products

31. O/N 12/P33/Q30, M/J 07/P32/Q28

What is likely to be the effect on developing economies of an increase in inward foreign direct investment?

A an increase in the burden of debt

B a slowdown of rural-urban migration

C an increase in visible trade deficits

D an acceleration of technology transfers

32. O/N 06/P3/Q24

Which of the following are characteristics of most developing economies?

	high government debt: GDP ratio	a high average propensity to save
A	✗	✗
B	✗	✓
C	✓	✓
D	✓	✗

33. M/J 15/P31/Q23, M/J 12/P33/Q24, M/J 06/P3/Q24

Which change would best indicate that a country has experienced economic development?

A an improvement in the average citizen's quality of life

B an increase in the country's real GDP

C an improvement in the country's trade balance

D an appreciation in the country's currency

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34. O/N 05/P3/Q14

The value of government benefits that households are able to claim currently dependents on their level of income. What would reduce the extent of the resulting poverty trap?

A a campaign to encourage more households to apply for the benefits to which they are entitled.

B an increased in the level of government benefits.

C a reduction in the rate at which benefits are withdrawn as a household's income increases

D the targeting of benefits on those in greatest need

35. M/J 03/P3/Q25

Which of the following is most likely to be found in a developing economy?

A a low capital : labour ratio

B a high capital : labour ratio

C a high capital : output ratio

D a low labour : output ratio

36. M/J 16/P32/Q29, O/N 13/P33/Q28, O/N 08/P3/Q29,O/N 03/P3/Q29,

What is most likely to result from foreign direct investment in developing economies?

A a deterioration in the visible trade balances of developing economies.

B a reduction in migration to urban areas.

C a reduction in the transfer of technology to developing economies.

D a rise in per capita levels of consumption in developing economies.

37. M/J 03/P3/Q27

Workers in poor countries are often less productive than workers using the same technology in rich countries.What would be most likely to remedy this situation?

A an increased in the saving ratio in poor countries.

B increased investment in education in poor countries.

C increased freedom of migration from poor countries to rich countries.

D the removal of trade barriers imposed by rich countries on imports from poor countries.

38. O/N 94/P3

What is most likely to hold back the economic development of a less development country?

A a faster growth of labour productivity than wages.

B a high income elasticity of demand for its product.

C a reduction in tariffs by developed countries.

D an over-valued exchange rate.

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Answers Section

1. B
Less developed countries have huge debts and therefore high ratio of government debt to GDP. Also less developed countries have high average propensity to consume and therefore lower average propensity to save. Hence B is the answer.

2. C
More labour means more potential and therefore more economic growth. However, there will be greater supply of labour in developed countries due to migrant labour and therefore less pressure on wage rises. Hence, C is the answer.

3. D
Less developed countries have low capital-output ratio, high external debt, high population growth, and saving ratio. Hence D is the correct answer.

4. D
Developing countries have high birth rate, dominant primary sector, labour intensive production, rapid growth in population, high external debt, high death rate and low rate of saving.

5. D
Dependent population is below 16 and 65 or above 65 years. In 2012 dependent population constituted 25+15=40% of population and in 2014 it was 30+12=42%. Hence, the percentage of the dependent population has increased and D is the correct answer.

6. C
HDI includes three indicator i.e. health, education and real GDP per head. Only possible cause of lower HDI when health and education standards are high is lower real GDP per capita. Hence, C is the correct answer.

7. D
The withdrawal of agricultural subsidies in developed economies will increase demand for these goods from developing economies and hence will increase their exports and therefore most beneficial.

8. A
Developing economies have lower incomes and therefore lower saving ratio. Developing economies also have poor technology and therefore lower capital-output ratio. Hence A is the correct answer.

9. B
Foreign aid if spent on capital goods will increase productive potential and will lead to long term economic growth.

10. C
Between Year 2 and Year 3, real GNP per head increased from 110 to 121 so there will be an economic growth. Moreover life expectancy increased from 64 to 65 while percentage of age group enrolled in secondary education increased from 38 to 42. Hence there was economic development between year 2 and 3. Therefore, C is the correct answer.

11. C
Economic growth measures the increase in GDP or real output whereas economic development measure the quality of life. Hence, C is the correct answer.

12. A
A developing country will benefit from lower import tariffs by developed countries since then the developing country can sell more in the developed country. In order to do so, it will dedicate more resources towards production and increase specialization which will lead to higher productivity as well. The two policies imposed by developed country do not help the developing country protect its infant industries. The removal of subsidies will increase cost of imported food, so that adversely affects the health of the economy. There is mention of any tariffs imposed by the developing country.

13. D
Foreign direct investment will increase the GDP and causes financial inflows but when foreign firms will take profits back to the country of origin, it will lead to worsening of net income flows from investments and current account of balance of payments. Hence D is the correct answer.

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14. D

It is unclear how an increase in labor productivity can be linked to a larger balance of trade deficit. With high growth in labor productivity, relative labor costs may actually fall since workers are becoming more productive. An increase in labor productivity cannot lead to depreciation of a country's currency. More productive labor means each worker produces a greater output, thus real income per head will go up.

15. C

The table shows how the World Bank classifies various income groups. Between 2000 and 2010 in can be observed that the World Bank has increased the ranges by one third for each group. The only valid explanation for this is because of inflation. Prices must have increased during this time period and in order to maintain their standard of living or purchasing power incomes must have kept pace with the inflation rate. So only option C provides the right explanation for the changes recorded in the table. The other explanations are either irrelevant or cannot be determined with the existing information.

16. C

An increase in the employment rate will increase total GDP and total employed but does not increase GDP per worker. An increase in the population of working age has no impact on the GDP per worker. A shift in working from subsistence agriculture to working in manufacturing will increase GDP per worker since workers are expected to earn more working in the manufacturing sector. Total GDP will go up while total workers will remain the same, so GDP per worker rises. Option C gives the right answer.

17. D

Terms of trade is price of exports price of imports. For developing countries they will now sell food produced by farming cooperatives which are prices higher so if price of exports goes up then the terms of trade gets better. It is economically better that the amount of government aid provided to developing countries falls as those funds could now be reallocated where they could maximize benefit to the society. Option C is incorrect since it has not been mentioned. Developing countries will benefit from surging exports of these farming products and instead of diversifying and focusing on other sectors such as the tertiary sector, they will delay reforms to grow other sectors until they are forced to do so.

18. A

Developed countries have tertiary sector as a greatest proportion of GDP while primary sector is of lowest proportion. Hence A is most developed.

19. D

A developing country is one which has the highest proportion employed in the primary sector which is followed by the secondary sector and then the tertiary sector. Country D has the highest proportion of people employed in the primary sector and with lower proportion of people employed in secondary sector and the least in tertiary sector.

20. A

Means-tested benefits are those provided to households that have an income below a certain level. The problem with this is that once they earn above that level the benefits are retracted, so their net income remains the same; therefore, means-tested benefits are a reason as to why households may find themselves in a poverty trap. The answer, therefore, is option A. Progressive taxation refers to when the tax rate rises as the income of an individual goes up, thus it is another attempt to redistribute income to benefit the poor. Regressive taxation is defined as when the tax rate falls as income goes up. Universal benefits entitle welfare to everyone, but this will not cause more people to be in a poverty trap.

21. A

Developing countries have low rate of saving, labour intensive production, rising population, high death rate and net outward migration. Hence, A is correct option.

22. B

Developing economies have high government debt to GDP ratio and lower APS, hence, B is correct answer.

23. D

Long run economic growth is achieved by using supply side policies like the introduction of tax incentives to encourage households to save more.

24. C

Encouraging the extraction of finite natural resources will accelerate economic growth however doesn't necessarily contribute to economic development.

25. A

If developed countries abolish subsidies paid to their local producers, it will raise demand for goods imported from developing countries and hence increase trade will developing countries and will be consistent with a policy of 'trade not aid'.

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26. B
A decrease in the savings ratio means less funds available for investment and other purposes which is detrimental to the long run health of the economy. An increase in investment in human capital means over time workers are likely to become more productive and therefore the nation will be able to produce more using existing resources, so it will lead to increase in economic growth and development. A depletion in non-renewable resources means that although the economy is likely to grow fast in the short run, once it runs out of non-renewable resources in the long run economic growth will slow down. A similar concept applies to overtime working of labor, although the country can produce more temporarily once workers become tired the economy will go back to normal in the long run.

27. B
Money taken by emigrants will cause capital outflows but when they will send money back home which will be inflow of current transfers improving balance of payments. Hence option B is correct.

28. B
Low level of income per capita in a country arise from a low rate of economic growth in past periods.

29. B
More trade means developing countries should be given greater access to markets in developed countries so that developing countries can increase their exports which will help them to achieve economic development.

30. C
Import substitution refers to a policy when the government attempts to replace imports of certain products by encouraging local production for local consumption. This can help the country's industries to grow in size, become more competitive as they become more specialized as well. Moreover, it also helps the country become self-reliant, as it relies on local firms for certain products. The only invalid argument is presented in option C in which the country already has a comparative advantage in the good. It does not need to use import substitution because the country is better at producing that good. Domestic and foreign consumers are likely to be using the country's goods, so import substitution will have no effect.

31. D
Inward foreign direct investments bring in the better technologies from developed countries and invest it in developing countries, bringing the capital inflow as well. The visible balance deficits decrease and economic growth occurs.

32. D
Developing countries have to finance their government spending by taking aids, grants and debts due to low tax revenue. As people have low incomes, they tend to save less too. So there is low propensity to save.

33. A
Economic development or better standard of living will be experienced when there is improvement in average citizen's quality of life.

34. C
Poverty trap will only be reduced when there is reduction in the rate of withdrawn benefits as income rises. It will lead to a greater increase in their incomes from employment but proportionately lesser reduction in their benefits granted by government. Hence, overall, workers will be experiencing an increase in their incomes helping them to reduce the poverty trap.

35. A
Developing countries rely more on labour intensive techniques as capital requires high initial costs and forces unemployment of the unskilled workers. So a low capital to labour ratio exists.

36. D
FDIs increase capital inflows of developing countries and improve the visible trade balance by forcing lesser imports. Moreover, increased investment increases GDP and national income of the country. So this leads to rise in consumption due to greater incomes.

37. B
In a developing countries, there is lack of training and education to use newer technologies. This leads to decrease in productivity of workers of poor countries.

38. D
Country with higher (developing) inflation rate will be overvalued and country with lower inflation rate (developed) will be undervalued. The developing country will face a fall in demand for its exports leading to lower economic growth because of non competitiveness and its exchange rate will depreciate by the difference of inflation rate between them. This is also known as purchasing power parity theory.

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Unit 15 Keynesian theory of Income & Employment

15.1 Circular flow of income

1. M/J 16/P31/Q27, O/N 13/P33/Q18
Which correctly identifies leakages from a country's circular flow of income?

	private sector (S > I)	public sector (T > G)	trade sector (X > M)
A	no	no	yes
B	no	yes	yes
C	yes	no	no
D	yes	yes	no

2. M/J 13/P31/Q16
Which correctly identifies injections into a country's circular flow of income?

	private sector (S > I)	**public sector (T > G)**	**trade sector (X > M)**
A	no	no	no
B	no	no	yes
C	yes	no	no
D	yes	yes	yes

3. M/J 13/P32/Q20
Which correctly identifies injections into a country's circular flow of income?

	private sector I > S	government sector G > T	trade sector M > X
A	no	yes	yes
B	yes	no	no
C	yes	yes	no
D	no	no	yes

4. O/N 16/P32/Q24, O/N 12/P33/Q18, M/J 06/P32/Q17, M/J 09/P3/Q16
Which row correctly identifies net leakages from the circular flow of income?

	trade surplus (exports - imports)	government budget deficit (government spending - taxes)	private sector surplus (saving - investment)
A	✓	✓	✗
B	✓	✗	✗
C	✗	✓	✓
D	✗	✗	✓

5. M/J 15/P31/Q18
Which represents an injection into an economy's circular flow of income?

A a balance of trade deficit
B a government budget deficit
C household saving
D the retained profits of private companies

6. M/J 15/P32/Q19
Which is not an injection into a country's circular flow of national income?

A inward direct investment by multinational corporations
B private gross domestic fixed capital formation
C the sale of government bonds to members of the public
D wages paid to civil servants

7. M/J 14/P31/Q20, M/J 14/P33/Q20
What is not a leakage from the circular flow of income?

A expenditure on foreign goods
B indirect taxes
C undistributed profits
D unemployment benefits

8. O/N 16/P31/Q23, O/N 12/P31/Q18
Which represents a leakage from an economy's circular flow of income?

A a government budget surplus
B bank loans to private companies
C foreign direct investment in the economy
D the sale of assets by the country's households

9. M/J 12/P32/Q19
Which represents an injection into an economy's circular flow of income?

A a balance of trade surplus
B a government budget surplus
C the retained profits of private companies
D household saving

10. M/J 12/P33/Q18
Which represents a leakage from a country's circular flow of income?

A a government budget deficit
B bank loans to private companies
C the purchase of foreign assets by the country's households
D unemployment benefits

11. O/N 10/P32/Q16
What is **not** a leakage from the circular flow of income?

A expenditure on foreign goods
B indirect taxes
C undistributed profits
D unemployment benefits

12. M/J 02/P3/Q20
Which of the following is **not** a leakage from the circular flow of income?

A corporation tax
B expenditure on foreign goods
C personal saving
D retirement pensions

13. M/J 96/P3
Which of the following is an injection into the circular flow of income in an economy?

A corporation tax paid by private sector firms.
B money spent by overseas visitors on food and drink.
C the purchase of government stock.
D the purchase of shares on the Stock Exchange.

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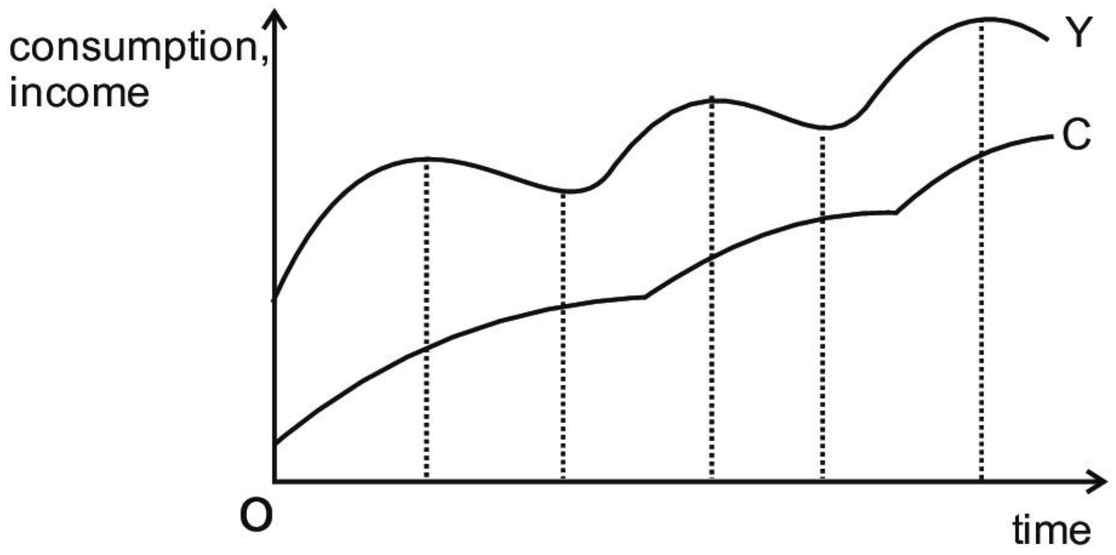
14. M/J 82,O/N 00/P3

The diagram shows the movements of consumption (C) and national income (Y) over time.



What can be deduced from the diagram?

A Consumption is determined by other factors as well as current income.

B Saving is increases during a recession.

C Saving is less volatile than consumption.

D The average propensity to consume is falling over time.

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Answers Section

1. D
Trade surplus occurs when exports are greater than imports (X>M) and hence fall under the category of injections. Government budget surplus occurs when taxes are greater than government spending (T>G), hence fall under the category of injections. Saving is withdrawal whereas investment is injection. When savings are greater than investments (S>I), this leads to overall leakages in economy

2. B
Trade surplus occurs when exports are greater than imports (X>M) and hence fall under the category of injections. Government budget surplus occurs when taxes are greater than government spending (T>G), hence fall under the category of injections. Saving is withdrawal whereas investment is injection. When savings are greater than investments (S>I), this leads to overall leakages in economy

3. C
Trade deficit occurs when exports are lesser than imports (M>X) and hence fall under the category of leakages. Government budget deficit occurs when taxes are lesser than government spending (G>T), hence fall under the category of injections. Saving is withdrawal whereas investment is injection. When savings are lesser than investments (I>S), this leads to overall injections in economy

4. D
Trade surplus occurs when exports are greater than imports and hence fall under the category of injections. Government budget deficit occurs when taxes are lesser than government spending, hence fall under the category of injections. Saving is withdrawal whereas investment is injection. When savings are greater than investments, this leads to overall withdrawal in economy

5. B
Trade deficit occurs when exports are lesser than imports (M>X) and hence fall under the category of leakages. Government budget deficit occurs when taxes are lesser than government spending (G>T), hence fall under the category of injections. Saving is withdrawal.

6. C
Direct investment by multinationals or gross fixed capital formation both are forms of investment and therefore injections. Wages paid by government to civil servants is a form of government spending and therefore an injection. However sale of government bonds is not because it is a form of finance of government spending rather than injection. Hence C is the answer.

7. D
Expenditure on foreign goods is imports and leakage from circular flow. Indirect tax and undistributed profits are also leakages. However, unemployment benefits are transfer payments and not included as leakage. Hence D is correct answer.

8. A
Government budget surplus occurs when taxes are greater than government spending (T>G), hence fall under the category of leakage.

9. B
Injections= Investment+ Government spending+ exports; withdrawals= savings+ taxes+ imports. So a trade surplus means exports are greater than imports which means there is a net injection into the economy. So option A is correct. A government budget surplus means taxes are greater than government expenditure so in this case withdrawals are greater. Retained profits from companies do not apply and household savings are withdrawals as the equation shows.

10. C
Government budget deficit means tax is greater than government spending (T>G) therefore a leakage from circular flow of income. Bank loans to private companies is neither leakage nor injection. Unemployment benefit is only transfer payment and is neither counted leakage nor injection.
Purchase of foreign assets by the country's households is a leakage from the circular flow of income.

11. D
Taxes and imports and undistributed profits act as leakages. Unemployment benefit is only transfer payment and is neither counted leakage nor injection.

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12. D

Taxes, expenditure on foreign goods (imports) and personal savings, are all counted as withdrawals. Retirement pensions is government expenditure and accounted as transfer payments only.

13. B

Injections lead to increase in national income of economy. Among all options, money spent by overseas visitors on food is categorized as exports (x) and will improve the balance of trade. Therefore this will be an injection.

14. A

The diagram shows an up and down trend of current income compared to a relatively stable trend of consumption from the diagram, it can be inferred that the consumption is partially being affected by current income. There must be other factors that contribute to changes of consumption. Other options cannot be conclusively concluded from the diagram.

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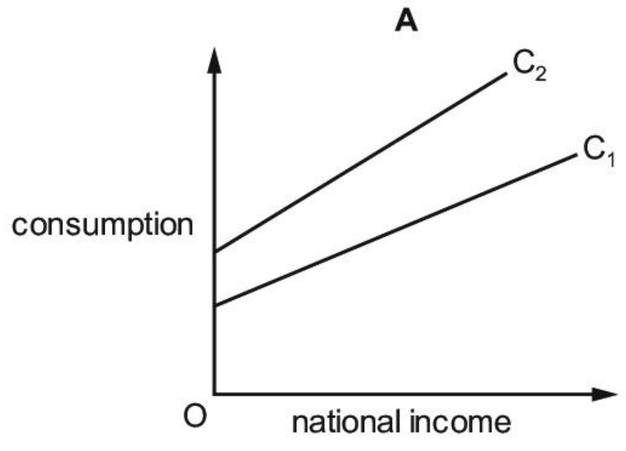
15.2 Consumption function

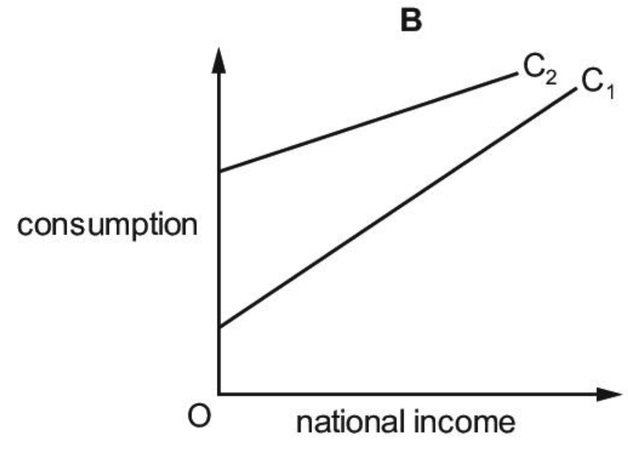
1. M/J 14/P31/Q22

A government increases the rate of unemployment benefit.
Which diagram shows the resulting shift (from C_1 to C_2) in the consumption function?

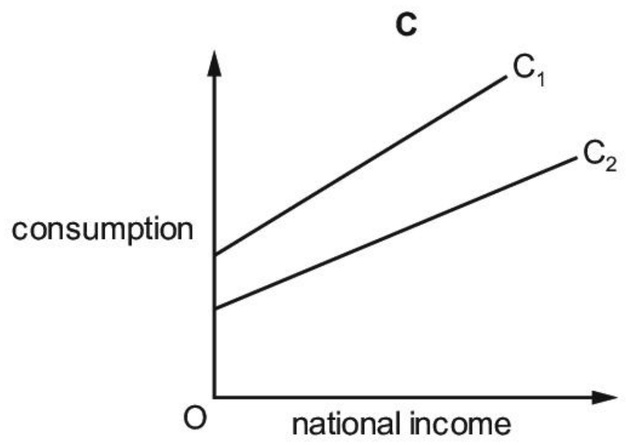
A



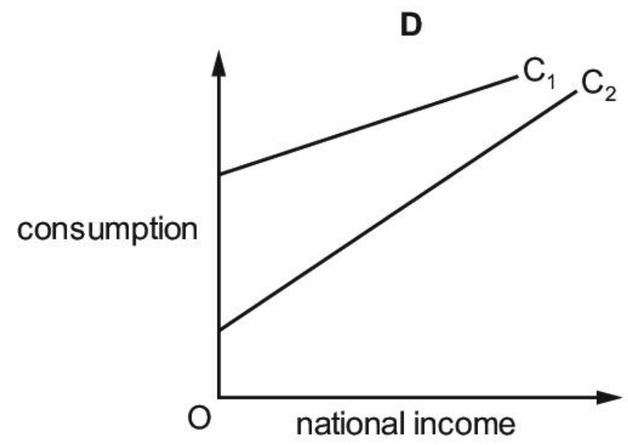
B



C

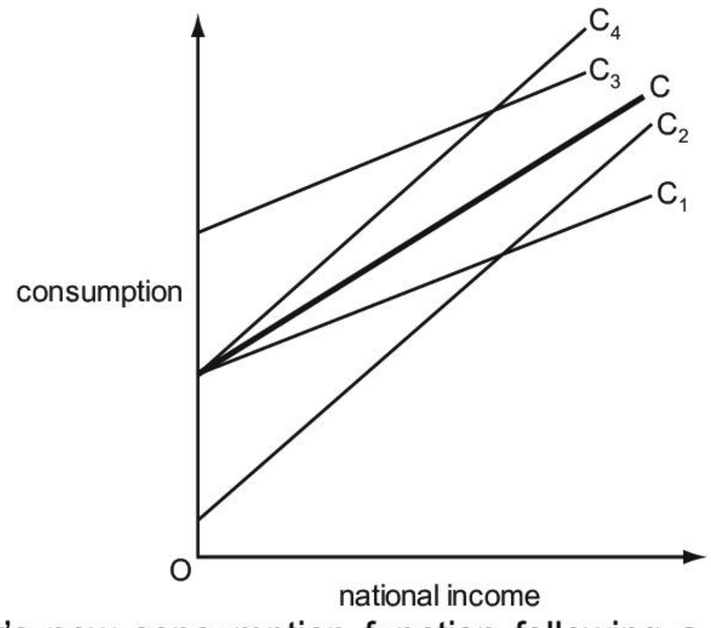


D



2. M/J 12/P32/Q22

In the diagram, C is an economy's initial relationship between consumption and national income.



Which curve could show the economy's new consumption function following a reduction in the rate of unemployment benefits?

A C_1 **B** C_2 **C** C_3 **D** C_4

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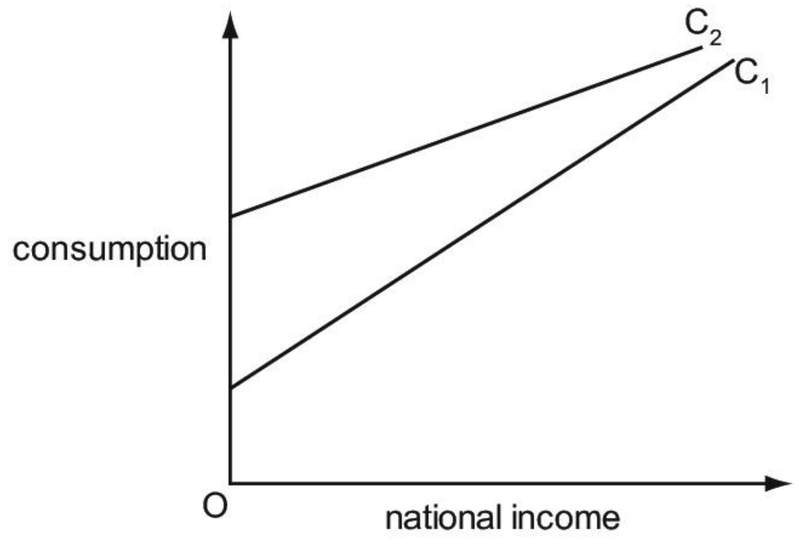
3. O/N 11/P31/Q15, O/N 11/P33/Q14

In the diagram, C_1 shows the relationship between consumption and national income.



What could cause the consumption function to shift to C_2?

A an increase in exports

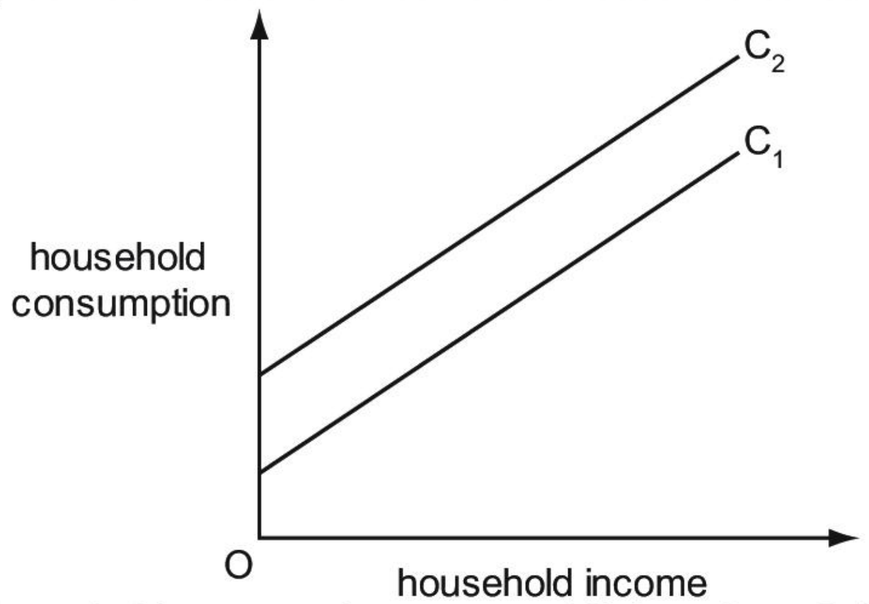
B an increase in the rate of interest

C an increase in the rate of unemployment benefits

D an increase in the standard rate of income tax

4. M/J 10/P32/Q17

The diagram shows the relationship between household income and household consumption.



What would be likely to cause the household consumption curve to shift from C_1 to C_2?

A a decrease in household income

B a decrease in the value of household assets

C an increase in interest rates

D an increase in the expected future level of household income

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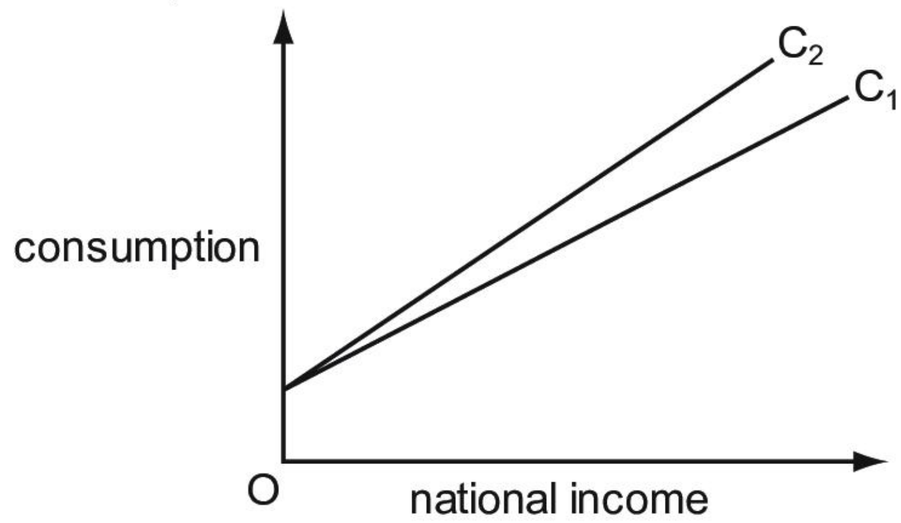
5. M/J 09/P32/Q18

A country's initial consumption function is C_1.



What would be most likely to cause the consumption function to shift from C_1 to C_2?

A a decrease in personal disposable income

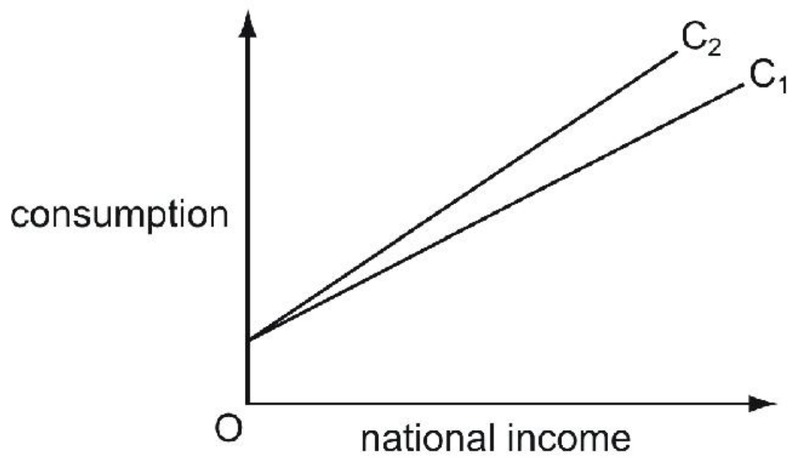
B a decrease in the expected future rates of income tax

C an increase in interest rates

D an increase in wealth

6. M/J 08/P3/Q21

In the diagram, C_1 shows the initial relationship between consumption and national income.



What could cause the consumption function to shift to C_2?

A an increase in exports

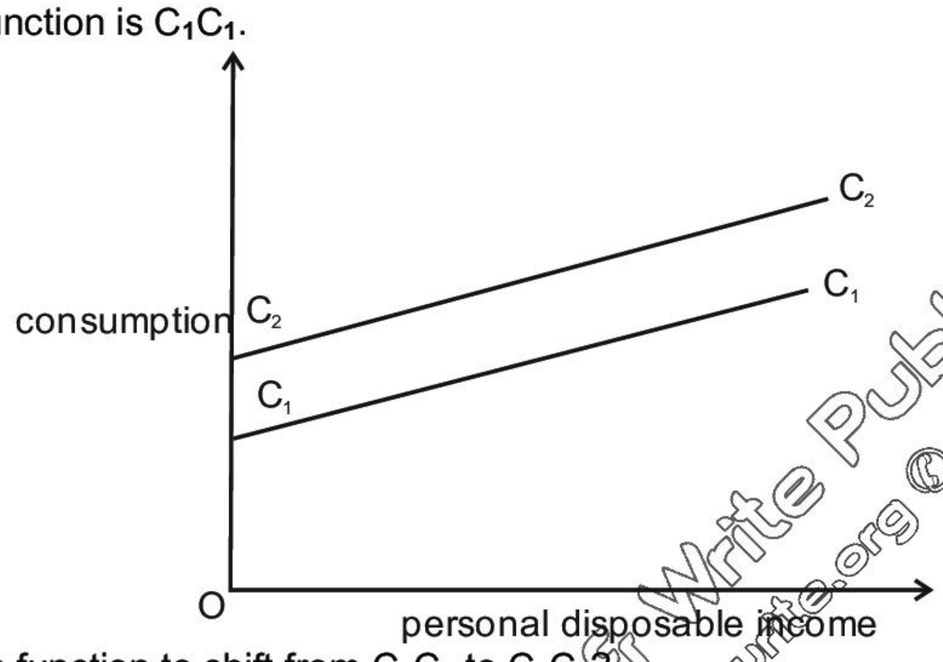
B an increase in investment

C a decrease in the rate of unemployment benefits

D a decrease in the standard rate of income tax

7. O/N 04/P3/Q22

A country's initial consumption function is C_1C_1.



What will cause the consumption function to shift from C_1C_1 to C_2C_2?

A an increase in wealth

B an increase in interest rates

C an increase in personal disposable income

D an increase in the expected future rates of income tax

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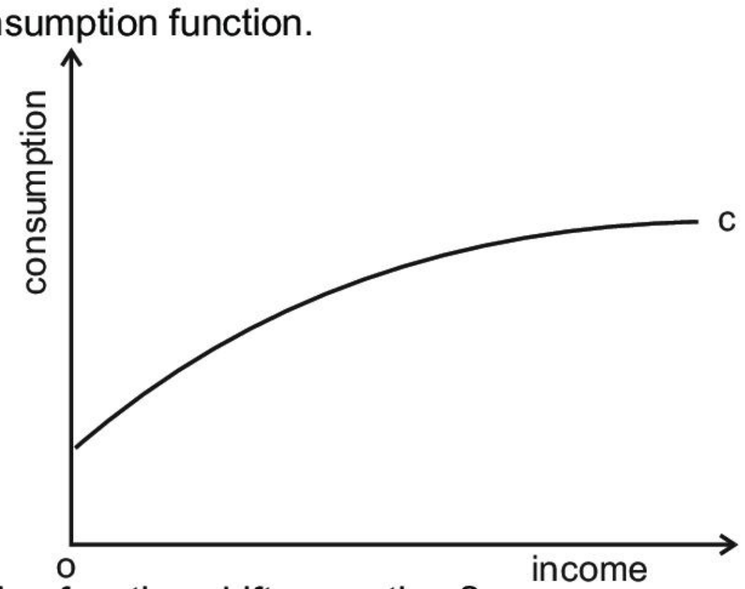
8. M/J 96/P3

The diagram shows an economy's consumption function.



What might explain why the consumption function shifts over time?

A Autonomous consumption is greater than zero.

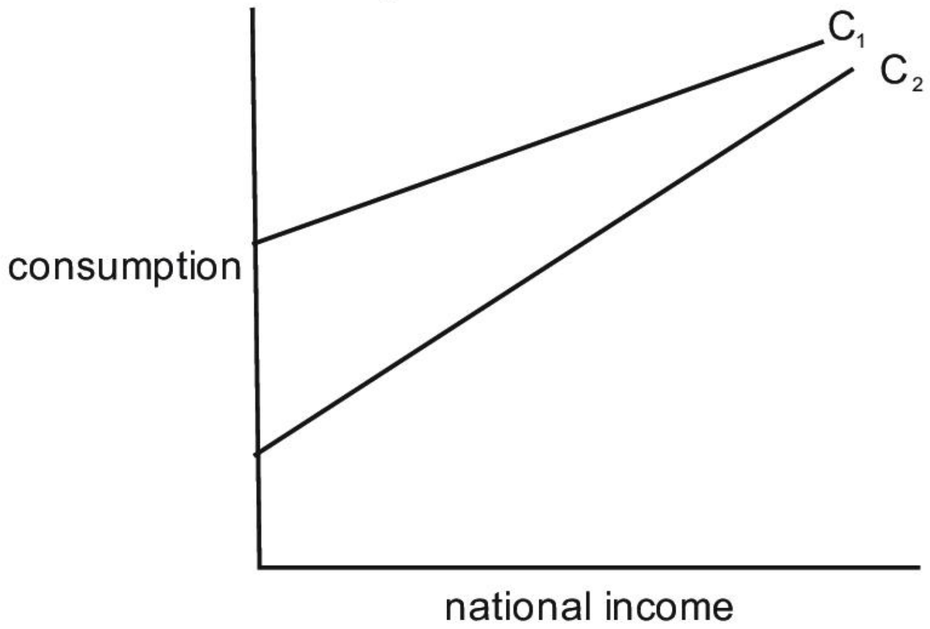
B Income is only one of several variables that affect consumption.

C The average propensity to consume falls as income increases.

D The marginal propensity to consume falls as income increases.

9. O/N 95,M/J 03/P3/Q22

In the diagram, C_1 shows the initial relationship between consumption and national income.
What could cause the consumption function to shift to C_2?



A an increase in exports

B an increase in investment

C a decrease in the rate of unemployment benefits

D a decrease in the standard rate of income tax

10. O/N 93/P3

The table shows the consumption schedule of an economy.

income (Y) $m	consumption (C) $m
0	40
100	110
200	180
300	250
400	320
500	390

Which equation represents the economy's consumption function?

A C = 0.7Y

B C = (0.7 + 40)Y

C C = 40 + 0.7Y

D C = −40 + 0.7Y

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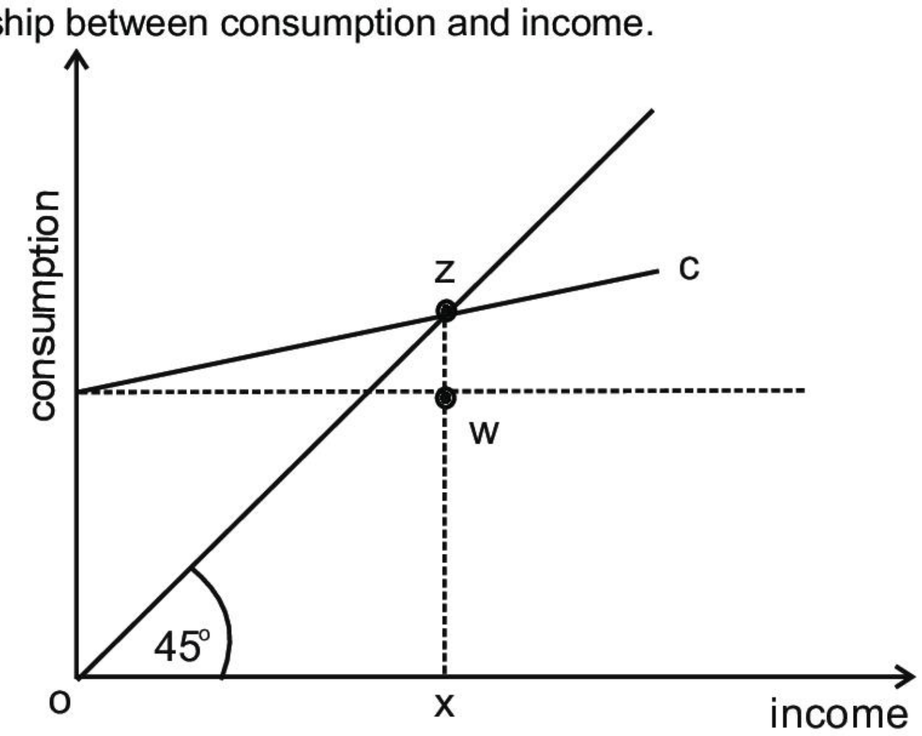
11. O/N 92/P3

The diagram shows the relationship between consumption and income.

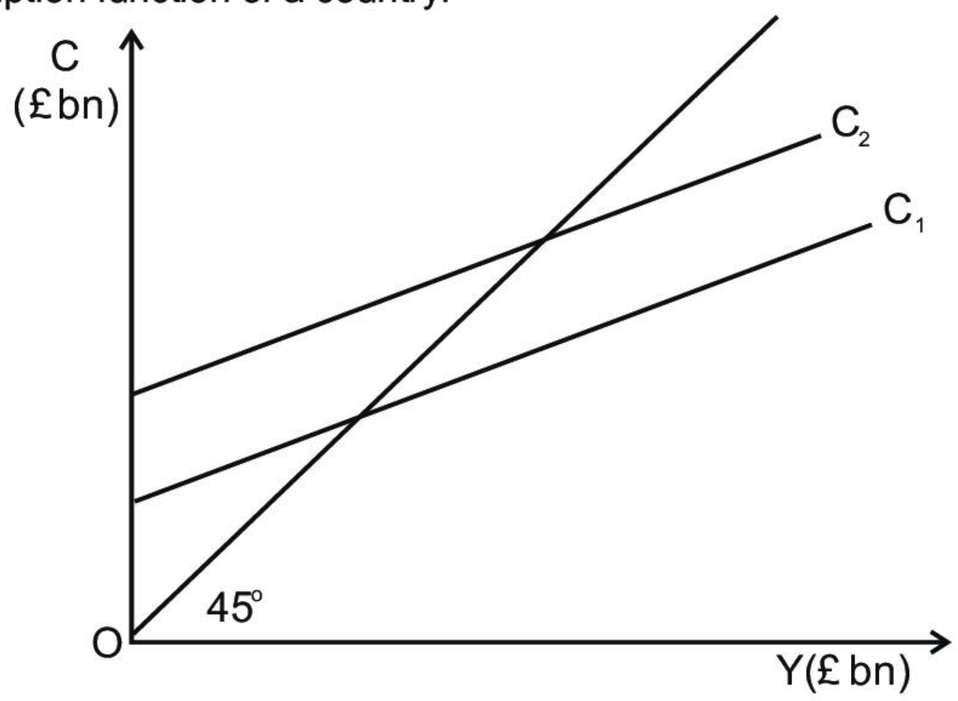


Given that the level of income is OX, what does the distance WZ represent?

A autonomous consumption.
B dissaving.
C induced consumption.
D the average propensity to consume.

12. M/J 90/P3

The diagram shows the consumption function of a country.



What could cause the consumption function to shift upwards from C_1 to C_2 ?

A an increase in the interest.
B an increase in direct taxation.
C an increase in the proportion of income saved by households.
D the expectation of an increase in the rate of value added tax.

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Answers Section

1. B
More unemployment benefits means more spending by unemployed therefore consumption function shifts upward. An increase in unemployment benefits will reduce marginal propensity to consume. Hence B is correct answer.

2. B
Less unemployment benefits means less spending by unemployed therefore consumption function shifts downwards. A decrease in rate unemployment benefits will raise marginal propensity to consume so the curve will shift to C_2.

3. C
More unemployment benefits means more spending by unemployed therefore consumption function shifts upward. An increase in unemployment benefits will reduce marginal propensity to consume. Hence C is correct answer.

4. D
An increase in future expected income will increase the motivation to consume more. Increase in future incomes will allow them to spend more in the present as well as they will have income in the future to compensate for it.

5. C
An increase in interest rate will lead to decrease in cost of borrowing and decrease induced consumption.

6. D
There is an increase in induced consumption as the MPC has increased. Increase in exports will not affect consumption whereas increase in investment will increase the autonomous consumption. Decrease in rate of unemployment benefits will decrease the consumption. A decrease in standard rate of tax will increase the induced consumption as people with higher income will pay lower tax than before. Therefore option D is the answer.

7. A
Option C in an endogenous factor and therefore will cause a movement along the curve. Increase in wealth will lead to rise in autonomous consumption and therefore is correct. Option B and D will reduce the consumption.

8. B
The question asks for the reason of shifting of consumption function. Consumption function does not shift due to APC or MPC. Autonomous consumption is greater than zero but that does not satisfy the demand of question either. There are exogenous factor which shift the function which include wealth, interest rate, population etc. So B is the answer because it indirectly state that there are several factors excluding income, that affect the consumption.

9. C
According to diagram, autonomous consumption has decreased, but induced consumption increased. A will not affect consumption and B and D will increase it. A decrease in rate of unemployment benefits will reduce the money received by unemployed people and therefore they will cut down their consumption.

10. C
The general consumption function is

$$C = C_0 + MPC\ Y$$

According to table, C_0 = \$40m because at Y = 0, C = 40.

$$MPC = \frac{\Delta C}{\Delta Y} = \frac{110-40}{100-0} = \frac{70}{100} = 0.7$$

Therefore

$$C=40 + 0.7Y$$

11. C
Consumption function consists of two parts. Autonomous consumption is that which does not vary with the level of income and is represented by the distance on the y-axis whereas induced consumption is that part of consumption function which varies with the level of output. According to diagram, WX is autonomous consumption where WZ is induced consumption. Therefore C is the answer.

12. D
According to the diagram autonomous consumption has increased. Increases in interest, taxes and savings decrease the consumption. Expectation of increase in future tax will increase the current Therefore D is the answer.

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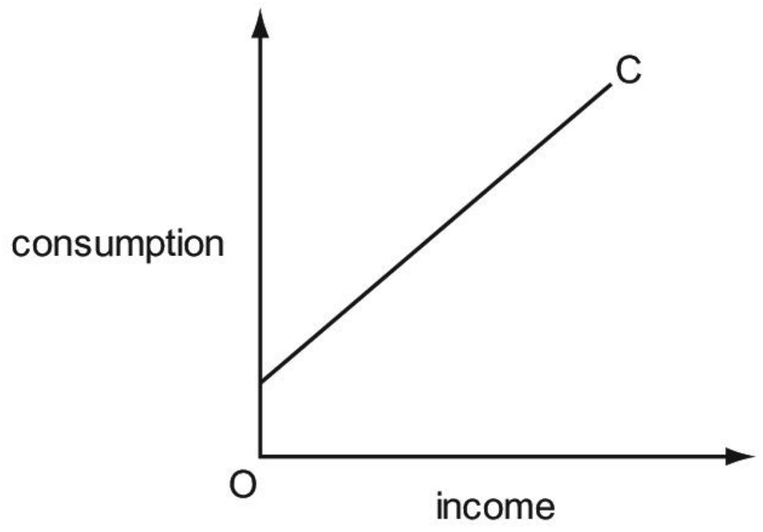
15.3 Marginal and average propensities

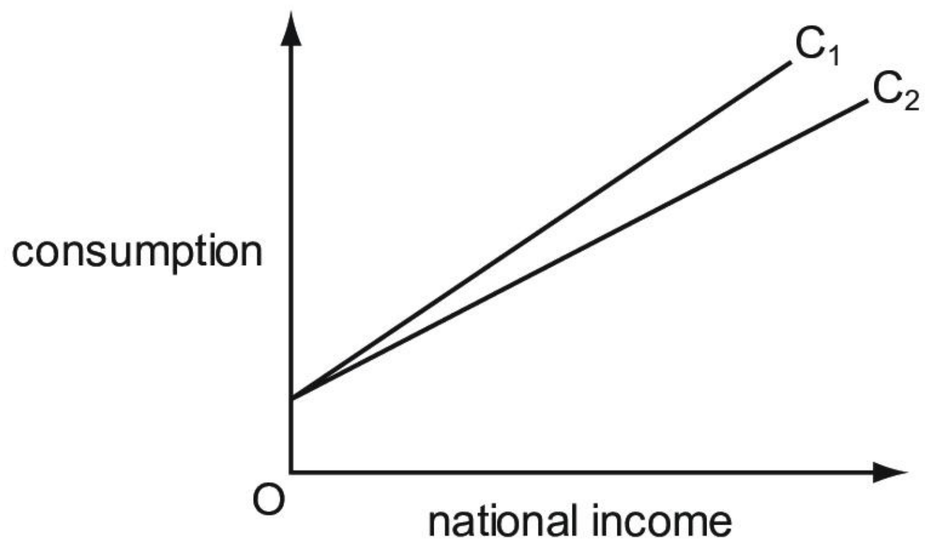
1. **M/J 14/P31/Q21**
In a closed economy with no government, an increase in investment of $100 million results in an increase in consumption of $300 million.
What is the marginal propensity to consume?
A $\frac{1}{5}$ **B** $\frac{1}{4}$ **C** $\frac{3}{4}$ **D** $\frac{4}{5}$

2. **O/N 12/P31/Q20**
The diagram shows the relationship between consumption expenditure and income.



Which statement is correct?
A The average propensity to consume is falling.
B The average propensity to consume is rising.
C The marginal propensity to consume is rising.
D The marginal propensity to consume is falling.

3. **M/J 12/P31/Q21, M/J 12/P33/Q21**
In the diagram, C_1 shows the initial relationship between consumption and national income.



What could cause the consumption function to shift to C_2?
A an increase in the rate of unemployment benefits
B an increase in the standard rate of income tax
C an increase in exports
D an increase in investment

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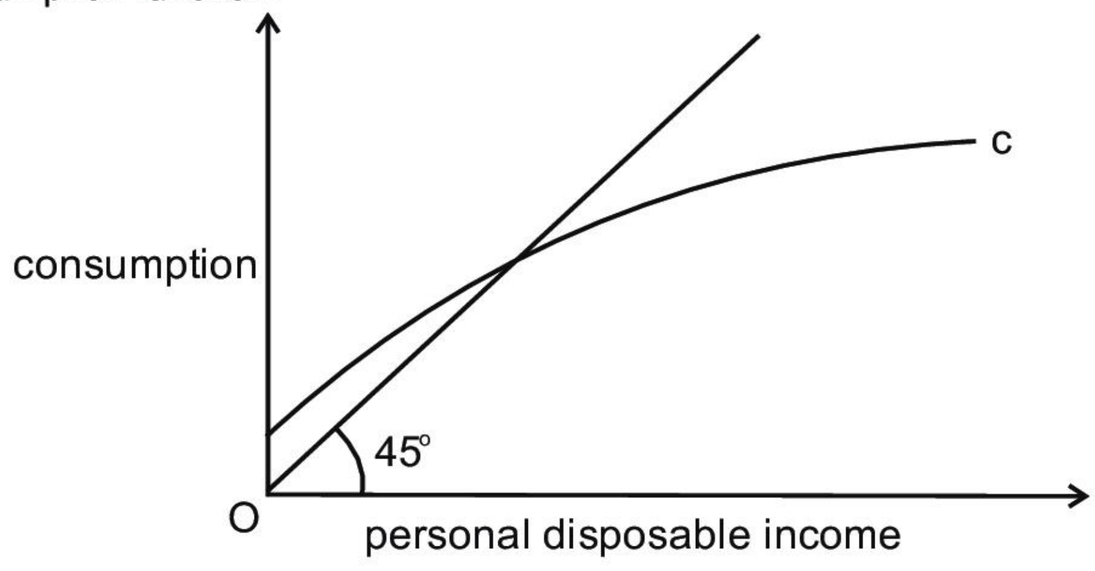
4. M/J 11/P32/Q16

The diagram shows a consumption function.



As income increases, what happens to the average propensity to save and the marginal propensity to save?

	average propensity to save	marginal propensity to save
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

5. O/N 17/P32/Q9, M/J 01/P3

The saving function in a closed economy with no government is given by the equation S = $-1 billion + 0.3Y.
If the level of national income is $10 billion, what is the average propensity to consume?

A 0.6 **B** 0.7 **C** 0.8 **D** 0.9

6. M/J 99/P3

What is the average propensity to save?

A the proportion of an additional that is saved.

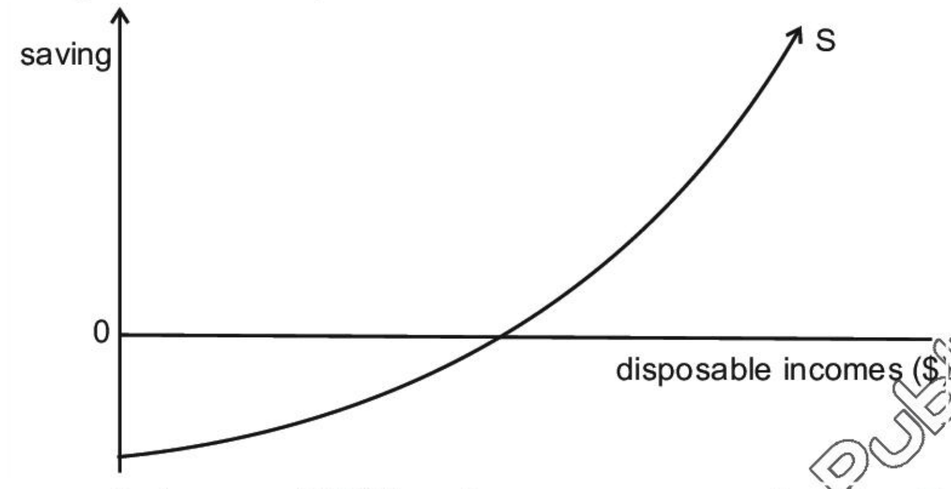
B the ratio of saving to national income.

C the ratio of the proportionate change in saving to the proportionate in national income.

D the relationship between saving and national wealth.

7. O/N 98/P3/Q26

The diagram shows the function in a given economy.



What happens to the marginal propensity to save (MPS) and average propensity to save (APS) as disposable income rises?

	MPS	APS
A	Fall	Fall
B	Fall	Rise
C	Rise	Fall
D	Rise	Rise

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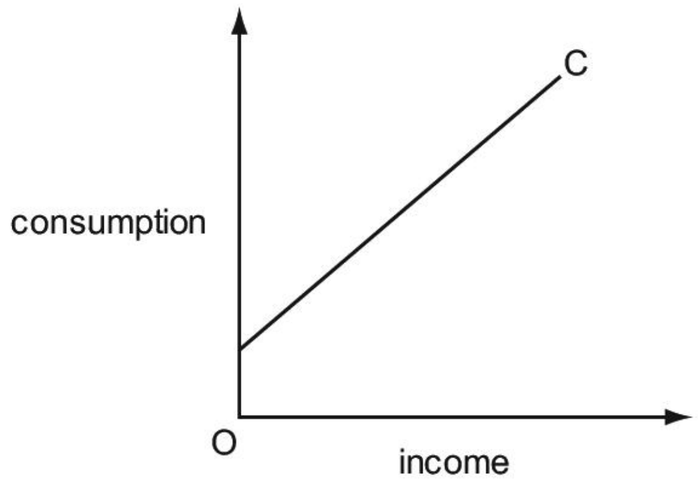
8. O/N 97,O/N 00/P3

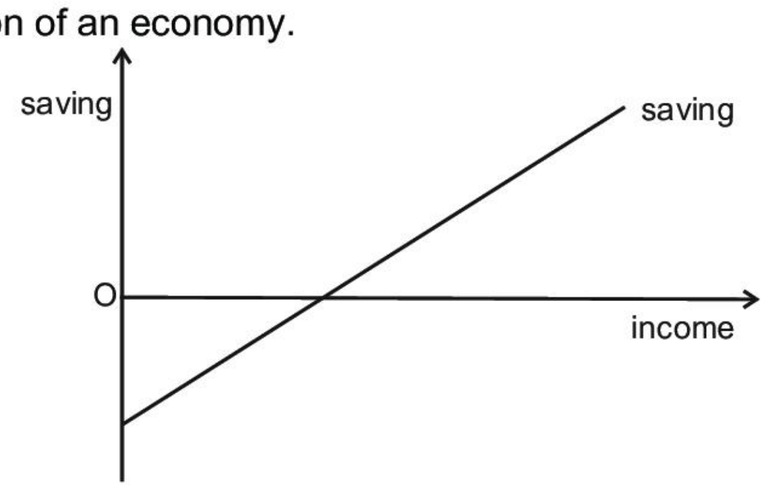
The diagram shows the relationship between consumption expenditure and income.
Which statement is correct?



A The average propensity to consume is constant.
B The average propensity to consume is rising.
C The marginal propensity to consume is constant.
D The marginal propensity to consume is rising.

9. M/J 97/P3

The diagram shows the saving function of an economy.

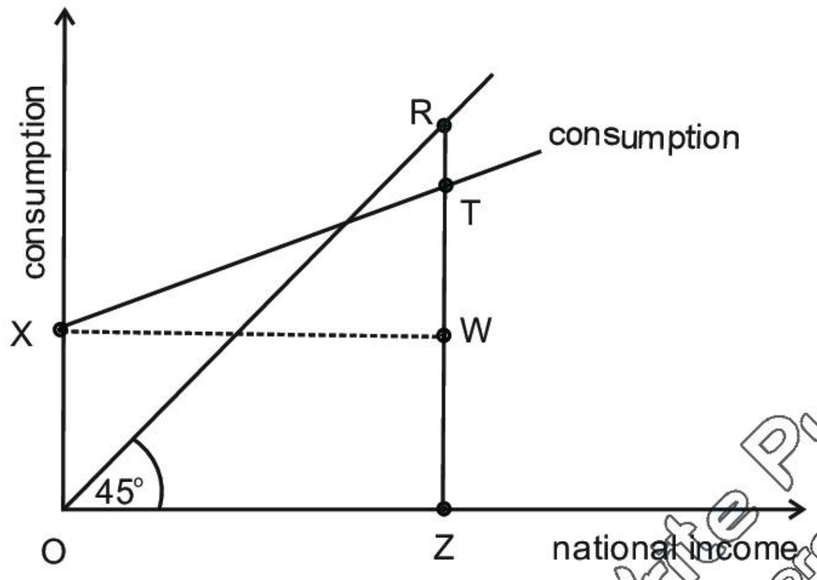


What falls as income rise?

A the average propensity to consume.
B the average propensity to save.
C the marginal propensity to consume.
D the marginal propensity to save.

10. M/J 96/P3/Q23

The diagram shows an economy's consumption function?



Which of the following measures the average propensity to consume when national income is OZ?

A $\frac{TZ}{OZ}$ **B** $\frac{TW}{XW}$ **C** $\frac{RW}{XW}$ **D** $\frac{RT}{TW}$

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11. M/J 95.O/N 03/P3/Q21

The table shows the level of consumption at various levels of national income for a closed economy with no government.

national income ($ million)	consumption ($ million)
10	11
12	12
14	13
16	14
18	15
20	16

What happens to the average and marginal propensities to consume as income increases?

	average propensity to consume	marginal propensity to consume
A	constant	constant
B	falls	constant
C	falls	falls
D	rises	falls

12. M/J 94/P3

What is the marginal propensity to consume?

A the change in consumption divided by the change in income.

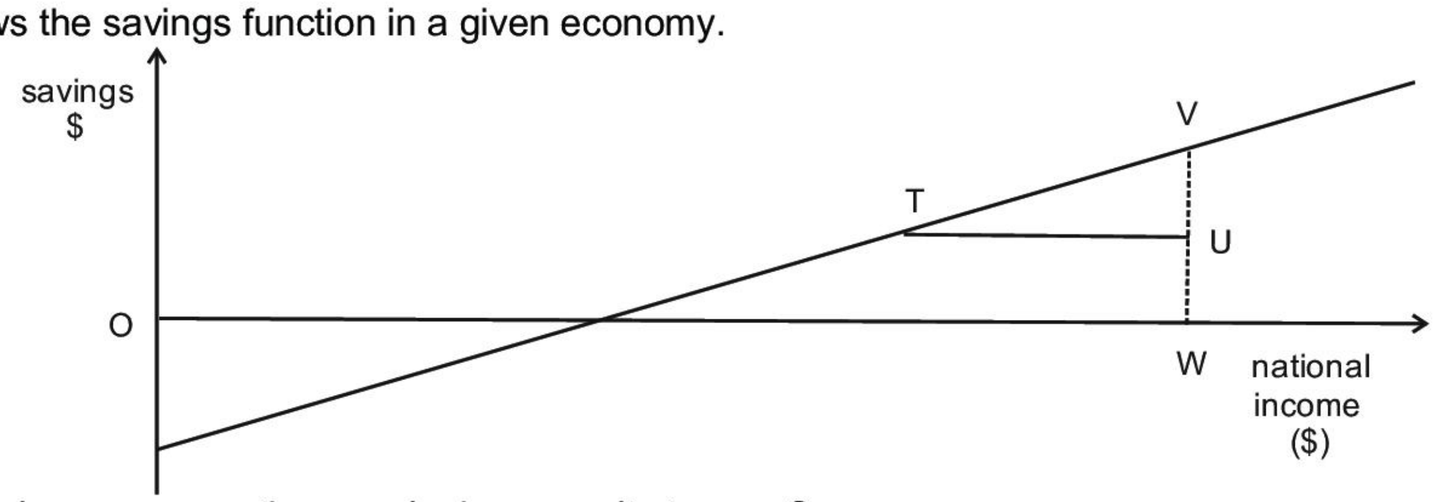
B the change in income divided by the change in consumption.

C the percentage in consumption divided by the percentage change in income.

D the percentage in income divided by the percentage change consumption.

13. O/N 93/P3

The diagram shows the savings function in a given economy.



Which of the following measures the marginal propensity to save?

A $\frac{OW}{WV}$ **B** $\frac{TU}{UV}$ **C** $\frac{OV}{OW}$ **D** $\frac{UV}{TU}$

14. M/J 90/P3

The table shows an individual's planned saving at different levels of weekly income.

income(£)	100	200	300	400	500
saving (£)	–20	0	20	40	60

What can be concluded about her marginal and average propensity to save?

	MPS	APS
A	constant	falls with income
B	constant	constant
C	constant	rise with income
D	rise with income	constant

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15. M/J 81,M/J 97/P3

The diagram shows a consumption function.

As income increases, what happens to the marginal propensity to **save**?

A It increases continuously.

B It decreases continuously.

C It increases at first, but eventually decreases.

D It decreases at first, but eventually increases.

16. Missing Reference

The savings function of a closed economy with no government is given by the equation

S = – £700 m + 0.2 Y.

If the level of the national income is £7000 m, what is the average propensity to consume?

A 0.1 **B** 0.2 **C** 0.6 **D** 0.8

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Answers Section

1. C

In 2 sector economy

Y = C + I

therefore

$\triangle Y = \triangle C + \triangle I \quad \Rightarrow \quad \triangle Y = 300 + 100 = \$400 \quad \Rightarrow \quad MPC = \frac{\Delta C}{\Delta Y} = \frac{300}{400} = \frac{3}{4}$

2. A

APC always falls with the increase in income regardless of consumption function is staright line or curved.

As we know that

$APC = \frac{C}{Y_d}$ Where $C = C_0 + MPC\ Y_d$

Putting value of 'C' in APC formula:

$$APC = APC = \frac{C_0 + MPC\ Y_d}{Y_d} = \frac{C_0}{Y_d} + \frac{MPC\ Y_d}{Y_d} = \frac{C_0}{Y_d} + MPC$$

Now in straight-line consumption function, although MPC is constant but $\frac{C_0}{Y_d}$ component of APC do fall with the rise in Y_d.

3. B

An increase in the standard rate of income tax will reduce the MPC and therefore will shift to C_2. Exports and investment would not directly influence consumption and an increase in unemployment benefits will cause an increase in consumption.

4. D

According to given diagram, consumption increases with a decreasing rate, therefore MPC falls with the rise in income. On the other hand, total consumption increases always with a lesser proportion as compared to growth of national income and therefore APC also falls.

MPC and APC is inversly proportional to MPS and APS respectively. Hence both MPS and APS will increase.

5. C

In closed economy

$APS = \frac{S}{Y}$ Where $C = S_0 + MPS\ Y$

Putting value of 'C' in APS formula:

$$APS = \frac{-S_0 + MPS\ Y}{Y} = \frac{-1+0.3\ (100)}{100} = \frac{2}{100} = 0.2$$

As

APS + APC = 1

APC = 1 - 0.2 = 0.8

6. B

As per definition

$APS = \frac{S}{Y}$

Therefore it is the ratio of saving to national income.

7. D

Consumption increases with a smaller proportion than the increase of income and therefore $APC = \frac{C}{Y_d}$ falls. Falling APC means rising APS regardless of type of saving function.

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8. C

A straight line function always has a constant gradient. The gradient of consumption function is MPC and therefore it is constant.

9. A

According to diagram MPS is constant. Therefore MPS will also be constant. However as income rise, APS will rise.
As

$$APS + APC = 1$$

As APS rises, it will lead to decrease in APC as income rises.

10. A

At OZ, the total consumption is TZ. Similarly total income is OZ. Therefore

$$APC = \frac{C}{Y} = \frac{TZ}{OZ}$$

11. B

Calculating APC and MPC at two different levels of income.

national income ($ million)	**consumption ($ million)**	$MPC = \frac{\Delta C}{\Delta Y}$	$APC = \frac{C}{Y}$
10	11	-	-
12	12	1÷2 =0.5	12÷12 = 1
14	13	1÷2 =0.5	13÷14 = 0.93
16	14	1÷2 =0.5	14÷16 = 0.87
18	15	1÷2 =0.5	15÷18 = 0.83
20	16	1÷2 =0.5	16÷20 = 0.80

Therefore MPC stays same but APC decrease with rise in income

12. A

As per definition marginal propensity to consume is change in consumption divided by change in income, i.e., $MPC = \frac{\Delta C}{\Delta Y}$

13. D

MPS is the gradient of saving function which can be measured by

$$MPS = \frac{\Delta S}{\Delta Y} = \frac{Rise}{Run} = \frac{UV}{TU}$$

14. C

Income	100	200	300	400	500
Saving	–20	0	20	40	60
$MPS = \frac{\Delta S}{\Delta Y}$	-	$= \frac{0-(-20)}{200-100} = \frac{20}{100} = 0.2$	$= \frac{20-0}{300-200} = \frac{20}{100} = 0.2$	$= \frac{40-20}{400-300} = \frac{20}{100} = 0.2$	$= \frac{60-40}{500-400} = \frac{20}{100} = 0.2$
$MPS = \frac{S}{Y}$	-	-	$= \frac{20}{300} = 0.07$	$= \frac{40}{400} = 0.10$	$= \frac{60}{500} = 0.12$

Therefore MPS is constant throughout whereas APS rises with income

15. A

According to the diagram, consumption increases with a decreasing rate therefore MPC decreases and hence, MPS increases with the rise in income.

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16. D

In closed economy

APS + APC = 1

At Y = 7000

$$APS = \frac{S}{Y} = \frac{-S_0 + MPSY}{Y} = \frac{-700 + 0.2(7000)}{7000} = \frac{1400 - 700}{7000} = \frac{700}{7000} = 0.1$$

Now

APS + APC = 1

APC = 1 – 0.1 = 0.9

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15.4 National income equilibrium

1. M/J 16/P31/Q26

In an economy with no government sector

C = consumption
I = investment
X = exports
M = imports
Y = national income.

If C = 20 + 0.75Y, I = 60, X = 120 and M = 120, what will be the equilibrium level of Y?

A 80 **B** 280 **C** 320 **D** 400

2. O/N 14/P32/Q23

In a closed economy with no government C = 40 + 0.8 Y and I = 60, where C is consumption, Y is income and I is investment.

What is the equilibrium level of income?

A 80 **B** 100 **C** 300 **D** 500

3. O/N 12/P33/Q20

Let C = consumption, I = investment, X = exports, M = imports, Y = national income in an economy with no government sector.

If C = 20 + 0.9Y, I = 60, X = 120 and M = 100, what will be the equilibrium level of Y?

A 100 **B** 180 **C** 1000 **D** 2000

4. M/J 08/P3/Q20

In a closed economy, the full employment level of income is $200 million.

$C = \frac{3}{4} Y$

I = $(50 – 5r) million,
where C = consumption,
Y = income,
I = investment,
r = the rate of interest.

If planned government expenditure is $30 million, what rate of interest would be required for there to be full employment?

A 2 % per annum **B** 4 % per annum **C** 6 % per annum **D** 8 % per annum

5. O/N 00/P3, Dec. 87

In a closed economy, the full employment level of income is $ 90 million, **C =** $\frac{2}{3}$ Y and

I = $ (40 - 3r) million, where C = consumption, Y = income, / investment and r = the rate of interest.

If planned government expenditure is $ 20 million, what rate of interest would be required for there to be full employment?

A 10% per annum **B** 12% per annum **C** 14% per annum **D** 16% per annum

6. O/N 06/P3/Q21

In a closed economy with no government C = 30 + 0.8 Y and I = 50, where C is consumption, Y is income and I is investment.

What is the equilibrium level of income?

A 64 **B** 80 **C** 250 **D** 400

7. O/N 99/P3

In a closed economy with no government C = 40 + 0.7 Y and I = 50, where C is consumption, **Y** is income and **I** is investment.

What is the equilibrium level of income?

A 640 **B** 300 **C** 210 **D** 90

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8. M/J 99/P3

The consumption function of an economy with no government sector and no trade is C = £180 + 0.6Y (where C = aggregate consumption and Y = national income).
If investment expenditure is autonomous and equal to £300, what is the equilibrium level of income?

A £480 **B** £640 **C** £800 **D** £1200

9. O/N 96/P3

In a closed economy with no government **C = 35 + 0.7 Y** and **I = 40**, where C is consumption, Y is income and I is investment.
What is the equilibrium level of income?

A 75 **B** 100 **C** 210 **D** 250

10. O/N 95/P3

The consumption function of an economy with no government sector and no foreign trade is

C = $120 + 0.6 Y,

(C = aggregate consumption and Y = national income).
If investment expenditure is autonomous and equal to £280, what is the equilibrium level of income?

A $400 **B** $600 **C** $800 **D** $1000

11. O/N 15/P33/Q20, O/N 11/P32/Q19, M/J 93,M/J 97/P3

The table shows some data for an economy.

investment $m	exports $m	government expenditure $m	savings $m	imports $m	taxation $m	national income $m
200	100	50	125	62.5	62.5	600
200	100	50	150	75	75	700
200	100	50	175	87.5	87.5	800
200	100	50	200	100	100	900

What is the equilibrium level of national income?

A $600 m **B** $700 m **C** $800 m **D** $900 m

12. O/N 13/P33/Q19

The statistics refer to an open economy with a government sector where

C = consumption expenditure
I = investment
G = government expenditure
X = exports
M = imports
Y = national income

In which situation is the economy in dis-equilibrium?

	C	I	G	X	M	Y
A	400	300	200	250	150	1000
B	500	300	200	250	150	1100
C	600	300	200	250	150	1200
D	800	300	200	250	150	1300

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13. O/N 08/P3/Q16

The table shows some data for an economy.

investment $m	exports $m	government expenditure $m	savings $m	imports $m	taxation $m	national income $m
200	100	50	50	120	100	700
200	100	50	60	140	150	800
200	100	50	75	160	200	900
200	100	50	100	180	275	1000

What is the equilibrium level of national income?

A $700 m **B** $800 m **C** $900 m **D** $1000 m

14. M/J 01/P3/Q22

The statistics refer to an open economy with a government sector where

C = consumption expenditure
I = investment
S = saving
G = government expenditure
T = tax
X = exports
M = imports

In which situation is the economy in dis-equilibrium?

	C	I	S	G	T	X	M
A	300	100	50	65	50	35	100
B	400	100	60	65	40	35	100
C	500	100	40	65	40	35	100
D	600	100	40	65	60	35	100

15. O/N 97,O/N 00/P3

The table shows the some data for an economy

savings $ m	**imports $ m**	**taxation $ m**	**investment $ m**	**exports $ m**	**government expenditure $ m**	**national income $ m**
100	50	100	100	200	200	200
150	75	150	100	200	200	750
200	100	200	100	200	200	1000
250	125	250	100	200	200	1250

What is the equilibrium level of national income?

A $500 m **B** $750 m **C** $1000 m **D** $ 1250 m

16. O/N 93/P3

The table gives information about an open economy with no government sector.

income ($ million)	**investment ($ million)**	**exports ($ million)**	**imports ($ million)**	**saving ($ million)**
100	22	20	10	20
120	22	20	12	24
140	22	20	14	28
160	22	20	16	32
180	22	20	18	36
200	22	20	20	40

What is the equilibrium level of income?

A $100 million **B** $120 million **C** $140 million **D** $160 million

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17. O/N 14/P14/Q21

The table shows some data for an economy.

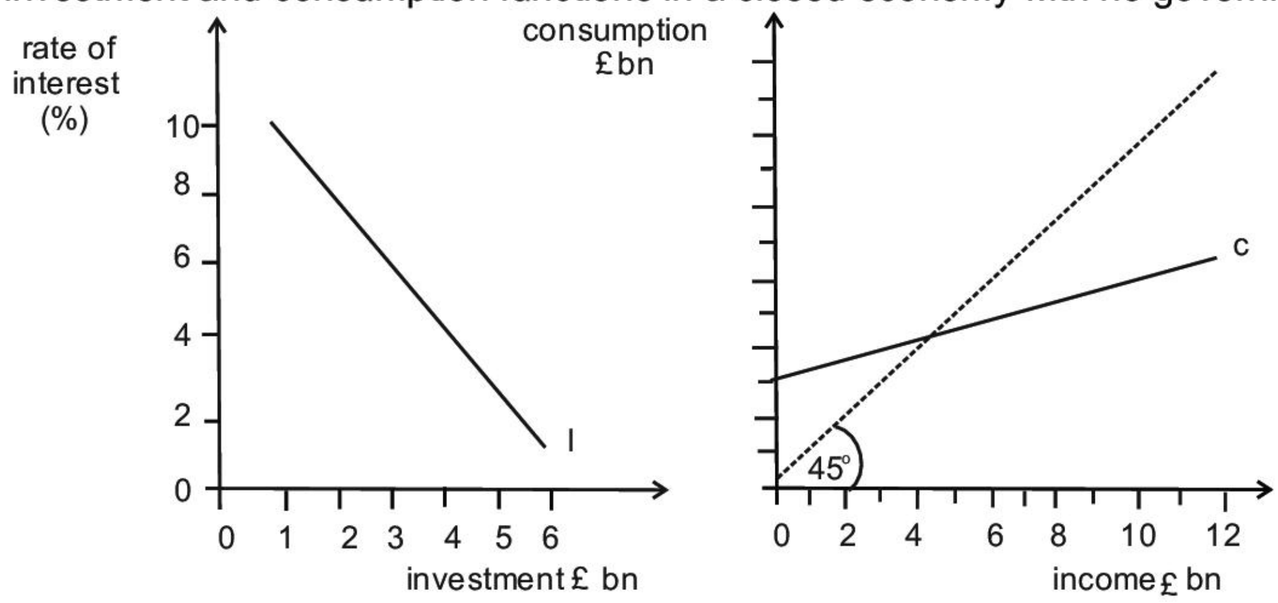
investment $m	exports $m	government expenditure $m	savings $m	imports $m	taxation $m	national income $m
200	100	100	100	120	100	700
200	100	100	120	140	100	800
200	100	100	130	170	100	900
200	100	100	140	200	280	1000

What is the equilibrium level of national income?

A $700 m **B** $800 m **C** $900 m **D** $1000 m

18. M/J 99/P3

The diagram show the investment and consumption functions in a closed economy with no government.

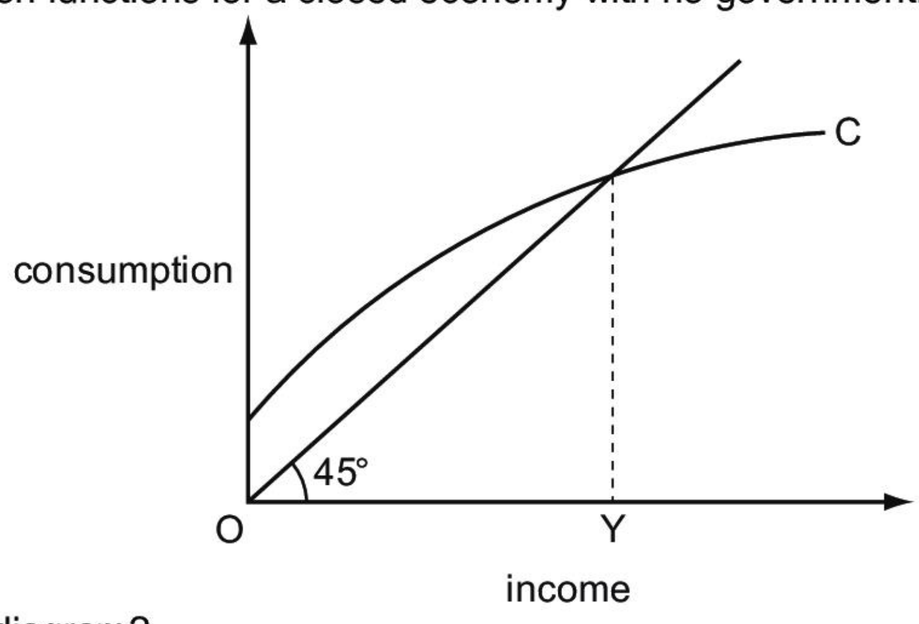


What is the equilibrium level of income if the rate of interest is 4%?

A £3 bn **B** £4 bn **C** £7 bn **D** £10 bn

19. O/N 97,M/J 10/P32/Q21

The diagram shows a consumption functions for a closed economy with no government.



What can be deduced from the diagram?

A At income levels below OY, saving is negative.

B At income levels below OY, there is an inflationary gap.

C The equilibrium level of income is OY.

D The marginal propensity to consume increases as income increases.

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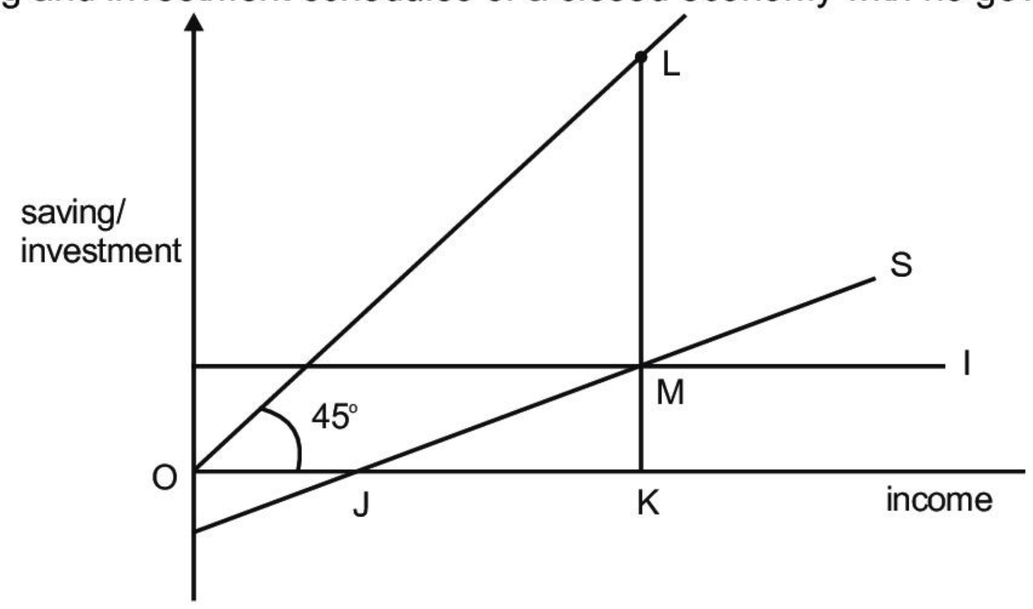
20. O/N 96/P3

The diagram shows the saving and investment schedules of a closed economy with no government.



At the equilibrium level of income which distances measures the level of consumption?

A OK **B** JK **C** LM **D** MK

21. M/J 93/P3

Equilibrium income in the economy is the level of national income at which

A the balance of payments is eventually balanced.

B the budged is exactly balanced.

C the economy is producing the full employment national income.

D there is no tendency for the national income change.

22. O/N 91/P3

Which of the following expressions denotes the equilibrium condition for national income in an open economy?
{I = investment, S = savings, T = taxes, G = government expenditure on goods and services, M = imports, X = exports.}

A G – T = M – X **C** I + G = S + T

B G – T = X – M **D** I + G + X = S + M + T

23. O/N 90/P3

In a closed economy with no government, national income is $50 000 million. Planned investment and planned savings are each $5 000 million.
Which of the following statements is necessarily correct?

A The economy is in equilibrium. **C** The multiplier is 5.

B There full employment. **D** Consumption expenditure is $40 000 million.

24. M/J 90/P3

Which one of the following is likely to occur when planned withdrawals exceed planned injections?

A a lengthening of firms' order books.

B less frequent discounts on manufacturers' recommended retail prices.

C more overtime working by employees.

D a rise in inventories above desired levels.

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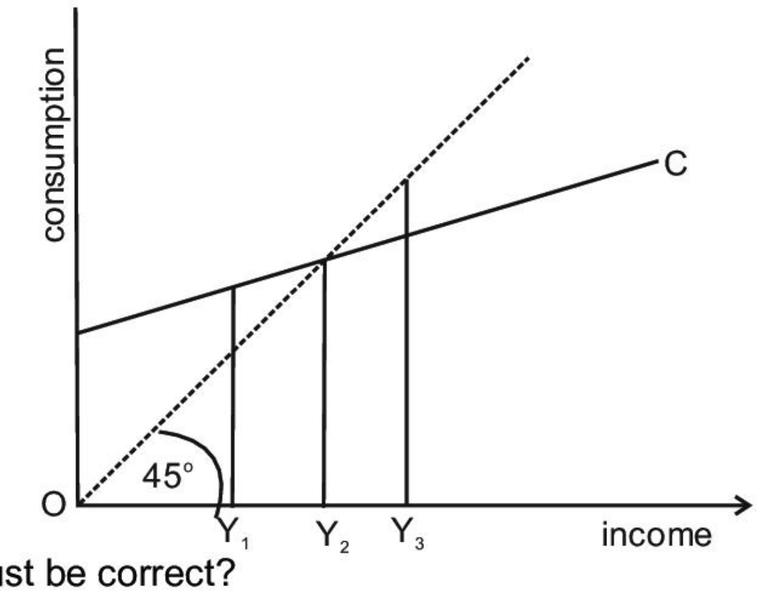
25. Dec. 89,O/N 91/P3

The diagram shows a consumption function.



Which of the following statements must be correct?

A The marginal propensity to consume is higher at Y_3 than at Y_1.

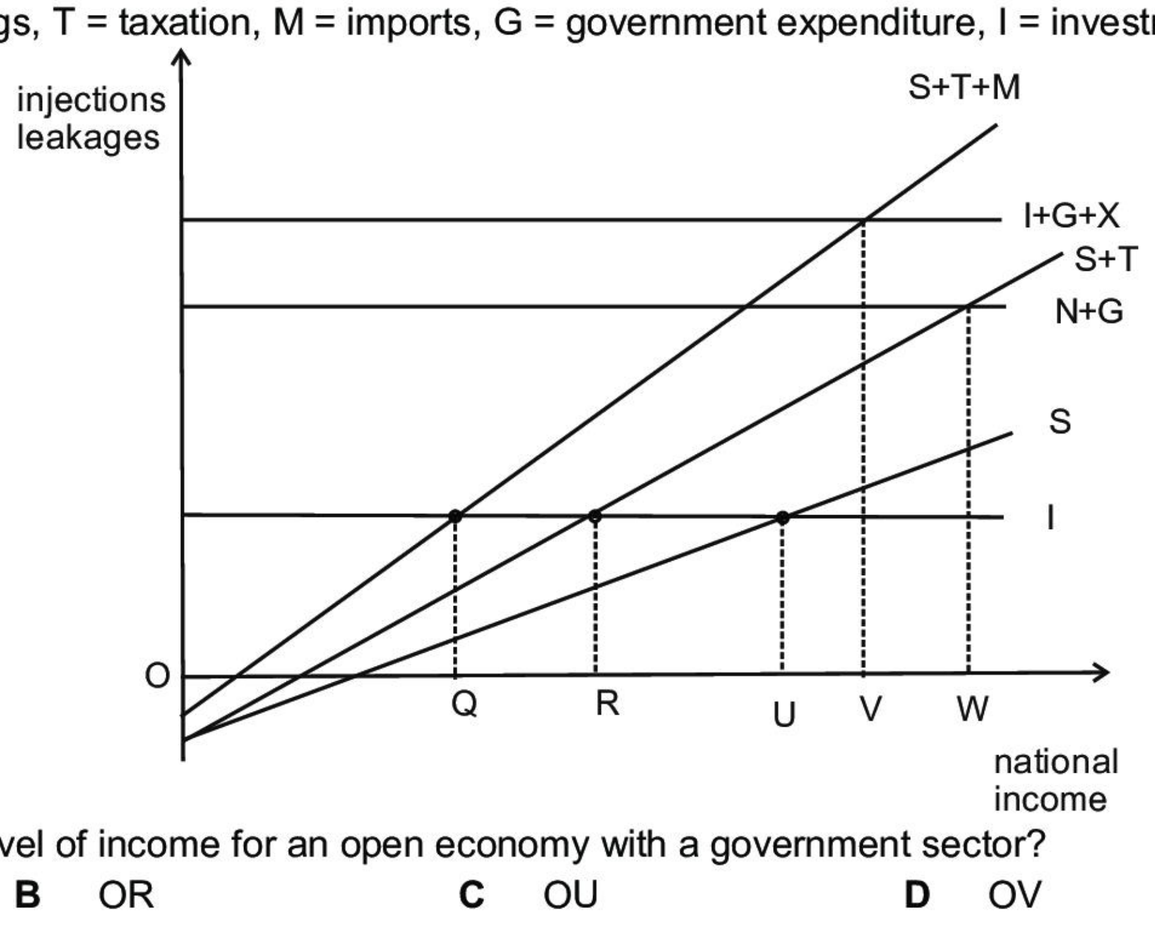
B At Y_1, total consumption is greater than total income.

C The ratio of consumption to income is fixed throughout the curve.

D Y_2 is the full employment equilibrium level of national income.

26. M/J 85,M/J 91/P3

In the diagram, S = savings, T = taxation, M = imports, G = government expenditure, I = investment and X = exports.



What is the equilibrium level of income for an open economy with a government sector?

A OQ **B** OR **C** OU **D** OV

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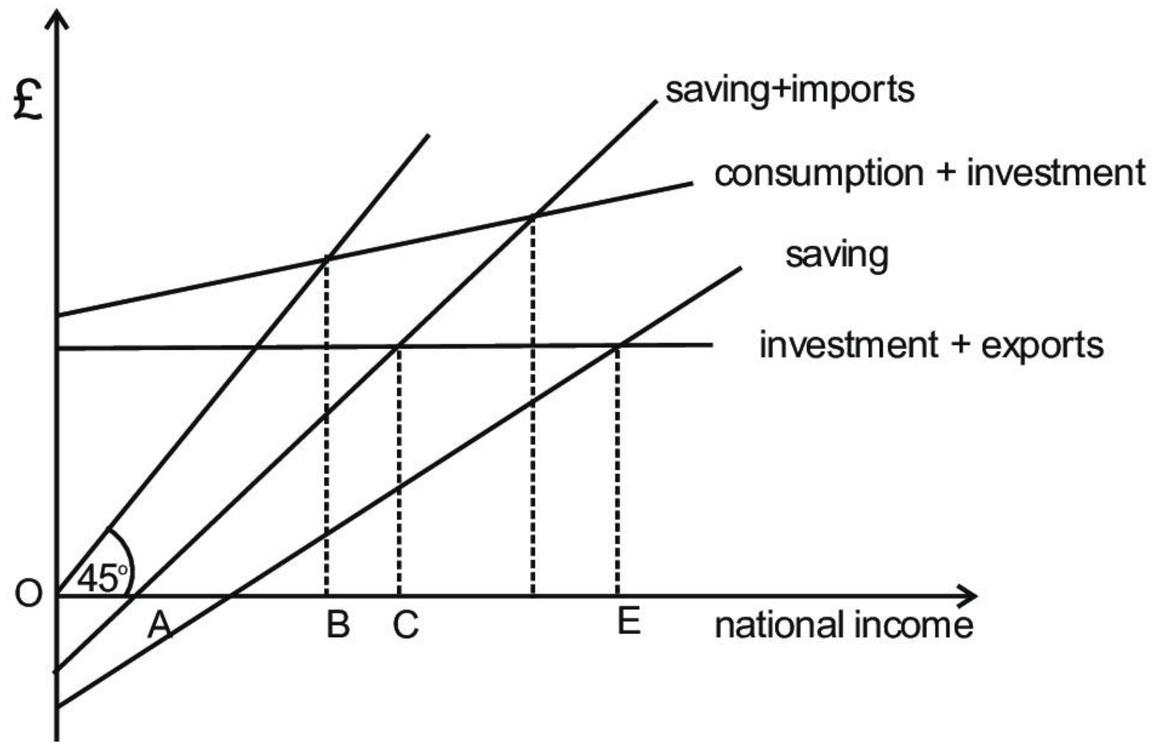
27. M/J 80/P3

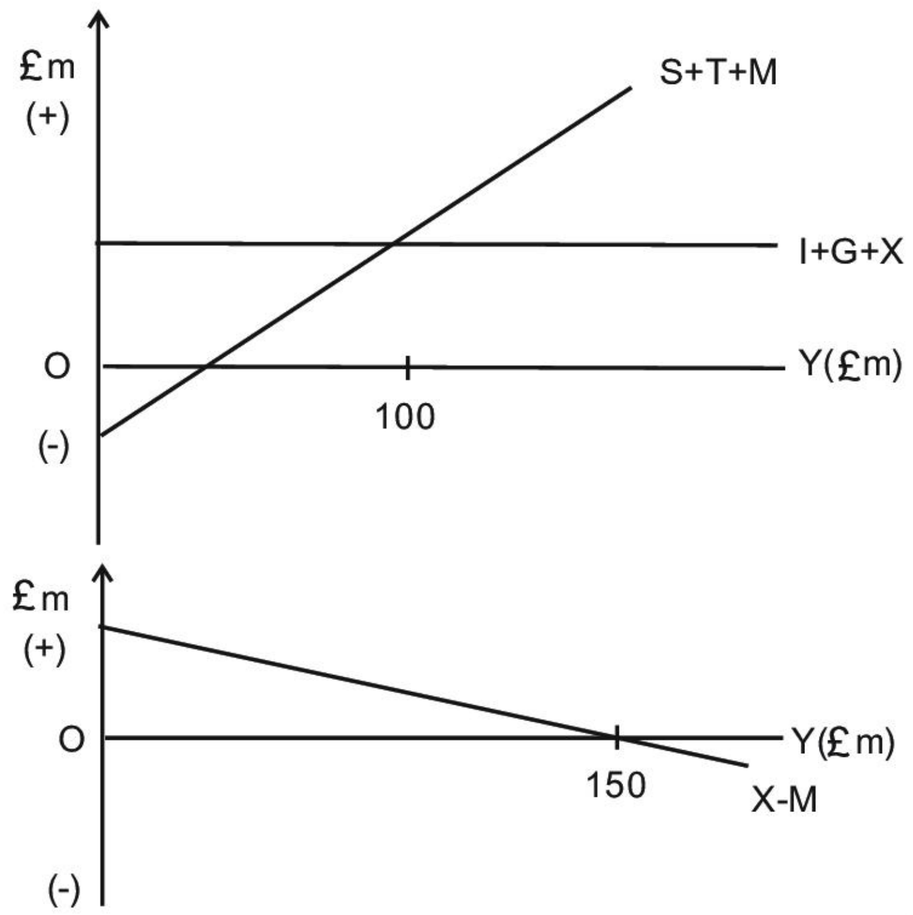
An open economy with no government sector is represented in the diagram below.
What is the equilibrium level of National Income?



A OA **B** OB **C** OC **D** OD

28. Dec 80,Dec 84,M/J 94/P3

The first diagram shows an economy's schedules of leakages and injection. Its trade balance schedule is shown in the second diagram.



If the full employment level of national income is £125 m, what is the situation of the economy?

A excess demand and a trade deficit
B excess demand and a trade surplus
C unemployment and a trade deficit
D unemployment and a trade surplus

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Answers Section

1. C

For national income equilibrium in 3 sector economy without government

$Y = AE = C + I + X - M = 20 + 0.75Y + 60 + 120 - 120 = 80 + 0.75Y$

$Y - 0.75Y = 100 \quad \Rightarrow \quad 0.25Y = 100 \quad \Rightarrow \quad Y = \frac{100}{0.25} = \$400$

2. D

For national income equilibrium in 2 sector economy

$Y = AE = C + I = 40 + 0.8Y + 60 = 100 + 0.8Y$

$Y - 0.8Y = 100 \quad \Rightarrow \quad 0.2Y = 100 \quad \Rightarrow \quad Y = \frac{100}{0.2} = \$500$

3. C

For national income equilibrium in 3 sector economy without government

$Y = AE = C + I + X - M = 20 + 0.9Y + 60 + 120 - 100 = 100 + 0.9Y$

$Y - 0.9Y = 100 \quad \Rightarrow \quad 0.1Y = 100 \quad \Rightarrow \quad Y = \frac{100}{0.1} = \$1000$

4. C

According to question

$Y = 200$

$C = \frac{3}{4} \times Y = \frac{3}{4} \times 200 = \$150$

In 3 sector closed economy, National income equilibrium is where AY= AE

$Y = C+I+G$ (given $I=50 -5r$, $G=30$)

$200=150+(50-5r)+30$

$50 = 50 - 5r + 30 \quad \Rightarrow \quad 5r = 30 \quad \Rightarrow \quad r = \frac{30}{5} = 6\%$

5. A

In 3 sector closed economy

$C = \frac{2}{3}Y \qquad Y = \$90m \qquad I = \$(40 - 3r)\,m \qquad G = \$20m$

In closed economy at full employment equilibrium

$Y = AE = C + I + G \quad \Rightarrow \quad 90 = \frac{2}{3}(90) + (40 - 3r) + 20 = 60 + 40 - 3r + 20 = 120 - 3r$

$90 = 80+40-3r \quad \Rightarrow \quad 3r = 120-90 \quad \Rightarrow \quad 3r = 30 \quad \Rightarrow \quad r = 10\%$

Hence the rate of interest is 10%

6. D

In 2 sector economy

$C=30 +0.8Y$ And $I = 50$

$AE = C+I_0 = 30 + 0.8Y + 50 = 80 + 0.8Y$

At Equilibrium

$Y=AE \quad \Rightarrow \quad Y= 80+0.8Y \quad \Rightarrow \quad Y-0.8Y=80 \quad \Rightarrow \quad 0.2Y=80$

$Y = \frac{80}{0.2} = 400$

7. B

Given $I_0 = 50$ $C=40+0.7Y$

At Equilibrium $Y=AE$

$Y=AE= C + I_0 = 40 + 0.7Y + 50 = 90 + 0.7Y = Y$

$Y-0.7Y = 90 \quad \Rightarrow \quad 0.3Y = 90 \quad \Rightarrow \quad Y = \frac{90}{0.3} = 300$

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8. D

Given I=300 C=£180+0.6Y
In 2 sector economy at equilibrium AE=Y

$$Y=AE = C+I_0 = 180 + 0.6Y + 300 = 480 + 0.6Y$$

$$Y - 0.6Y = 480 \quad \Rightarrow \quad 0.4Y = 480 \qquad Y = \frac{480}{0.4} = 1200$$

9. D

National income equilibrium is established where Y = AE
In 2 – sector economy

$$AE = C + I$$

Therefore

$AE=Y \Rightarrow Y= C+I \Rightarrow Y=\$35+0.7Y+40$

$Y-0.7Y=35+40 \Rightarrow 0.3Y=75 \Rightarrow Y=\frac{75}{0.3}=\$250$

10. D

National income equilibrium is established where Y = AE
In 2 – sector economy

$$AE = C + I$$

Therefore

$AE = Y \Rightarrow Y = C + I \Rightarrow Y = \$120 + 0.6Y + 280$

$Y - 0.6Y = 120 + 280 \Rightarrow 0.4Y = 400$

$Y = \frac{400}{0.4} = \$1000$

11. C

In 4 sector economy, equilibrium is established where

W=J

S+T+M = I+G+X

In case of dis-equilibrium

S+T+M ≠ I+G+X

Now using table below

I	X	G	S	M	T	I + G + X	S + T + M	Y
200	100	50	125	62.5	62.5	350	250	600
200	100	50	150	75	75	350	300	700
200	100	50	175	87.5	87.5	350	350	800
200	100	50	200	100	100	350	400	900

12. D

National income equilibrium is established where AE=Y and can be explained by the following table:

	C	I	G	X	M	Y	AE = C+I+G+X-M
A	400	300	200	250	150	1000	1000
B	500	300	200	250	150	1100	1100
C	600	300	200	250	150	1200	1200
D	800	300	200	250	150	1300	1400

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13. B

At Equilibrium level of National Income

S+T+M = I+G+X

Using the table below

I	X	G	S	M	T	S+T+M	I+G+X	Y
200	100	50	50	120	100	270	350	700
200	100	50	60	140	150	350	350	800
200	100	50	75	160	200	435	350	900
200	100	50	100	180	275	555	350	1000

As withdrawals equal injections at $800m level of national income therefore B is the answer.

14. C

In 4 sector economy, equilibrium is established where

W=J

S+T+M = I+G+X

In case of dis-equilibrium

S+T+M ≠ I+G+X

Now using table below

	C	I	S	G	T	X	M	I+G+X	S+T+M
A	300	100	50	65	50	35	100	200	200
B	400	100	60	65	40	35	100	200	200
C	500	100	40	65	40	35	100	200	180
D	600	100	40	65	60	35	100	200	200

So, according to options, in option C I+G+X=200 whereas S+T+M=180, Therefore W≠J there is dis-equilibrium

15. C

In 4 sector economy, equilibrium is established where

W=J

S+T+M = I+G+X

This can be calculated using table below

S	M	T	I	X	G	I+X+G	S+M+T	Y
100	50	100	100	200	200	500	250	200
150	75	150	100	200	200	500	375	750
200	100	200	100	200	200	500	500	1000
250	125	250	100	200	200	500	625	1250

16. C

Equilibrium in open economy with no government sector is

I +X = M+S

This can be calculated using table below

Y	I	X	M	S	J=I+X	W=M+S
100	22	20	10	20	42	30
120	22	20	12	24	42	36
140	22	20	14	28	42	42
160	22	20	16	32	42	48
180	22	20	18	36	42	54
200	22	20	20	40	42	60

As

I+X= M+S=42 at £140m level of national income therefore C is the answer.

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17. C

In 4 sector economy, equilibrium is established where

W=J

S+T+M = I+G+X

This can be calculated using table below

I	X	G	S	M	T	S+T+M	I+G+X	Y
200	100	100	100	120	100	320	400	700
200	100	100	120	140	100	360	400	800
200	100	100	130	170	100	400	400	900
200	100	100	140	200	280	620	400	1000

18. D

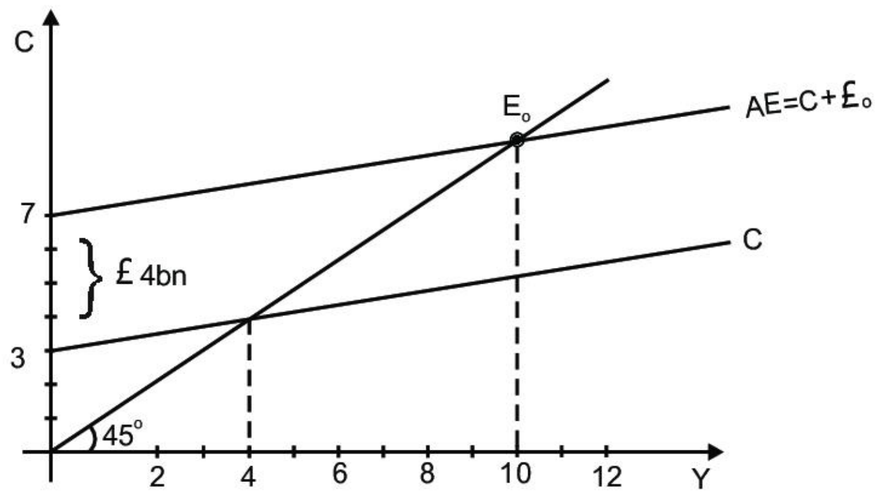
Using MEC curve

At 4% interest I = £4bn

In 2 sector economy

Y = C+I

Now adding investment to consumption function



As we add C to I the new AE function intersects 45° line at E_0 therefore leading to equilibrium national income equal to £ 10bn.

19. A

According to diagram, at income levels below OY, consumption is greater than national income. Therefore at these levels, there would be dis-saving as

Y = C+S And C>Y therefore S<O

20. C

According to diagram the equilibrium is established at OK where S = I

Moreover total national income at OK corresponds to LK according to 45° rule

Y=C+I or Y = C+S

Investment and saving equal the distance of MK. Therefore the remaining part LM shows the consumption and sum of both equals total national income.

21. D

National income equilibrium is established where withdrawals equal injections and there is no tendency to change.

22. D

As per definition

Equilibrium is where

injections = withdrawals i.e. I+G+X = S+M+T

23. A

In closed with no govt.. There is only investment as injection and saving as withdrawal.

As

I = S = $5000 therefore W=J and economy is in equilibrium.

24. D

When withdrawals exceed injections, there will be surplus of unsold stocks which is also known as a rise in inventories above the desired level.

25. B

The 45° line shows those set of points where consumption equals income. At Y_1, the consumption function is above 45° line which shows that at Y_1, consumption is great than national income.

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26. D

In open economy with government sector, equilibrium is established where, all withdrawals equal injections, i.e,

$$S+T+M = I+G+X$$

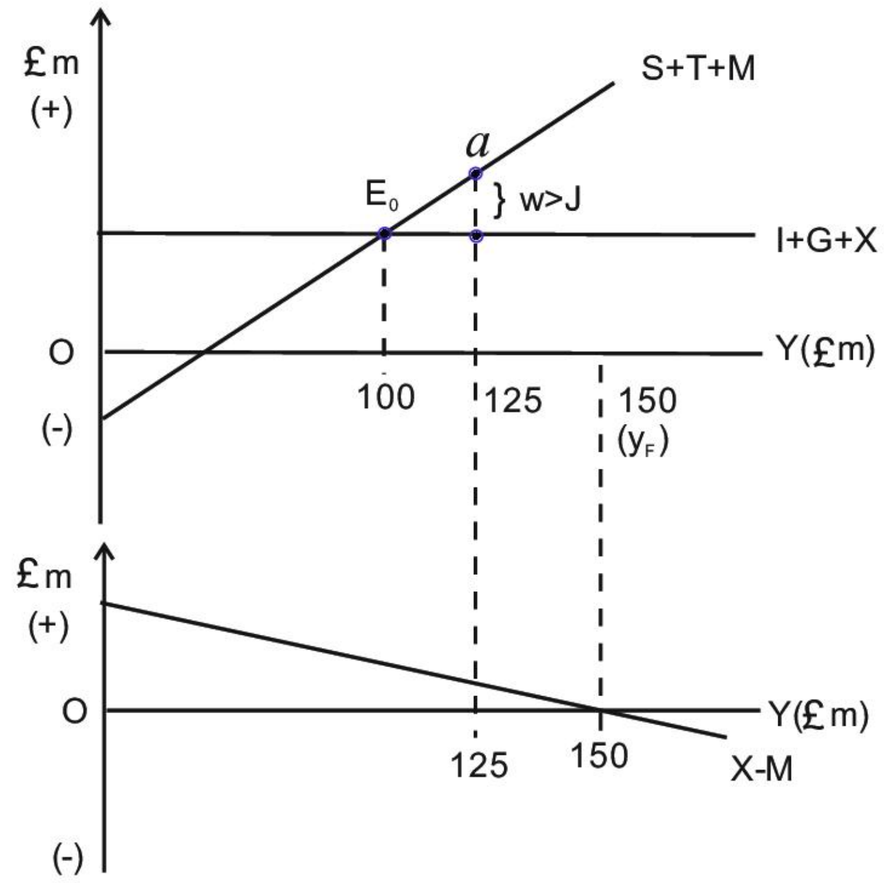
This is shown by OV.

27. C

Equilibrium with no government would be established where I_0+X_0 = M+S where I_0+X_0 = Injections and S+M= withdrawals

This relation is fulfilled at OC

28. D



As seen by diagram, equilibrium is established at £100m. At £125m there will be dis-equilibrium and unemployment of resources as withdrawals exceed injections.

At £125m of Y, there will be trade surplus because the difference between exports and imports is positive and X>M. Therefore D is the answer.

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15.5 Multiplier (K)

1. M/J 16/P33/Q27

In a closed economy with no government

C = consumption I = investment Y = income Δ = represents a change in a variable

What is the value of the investment multiplier?

A $\frac{\Delta I}{\Delta Y}$ **B** $\frac{\Delta C}{\Delta I}$ **C** $\frac{\Delta C}{\Delta Y}$ **D** $\frac{\Delta Y}{\Delta I}$

2. M/J 91/P3

In a closed economy with no government

C = consumer's expenditure
I = investment
Y = income
r = represents a change in a variable

What is the value of the investment multiplier?

A $\frac{I}{Y}$ **B** $\frac{Y}{C}$ **C** $\frac{\Delta C}{\Delta I}$ **D** $\frac{\Delta Y}{\Delta I}$

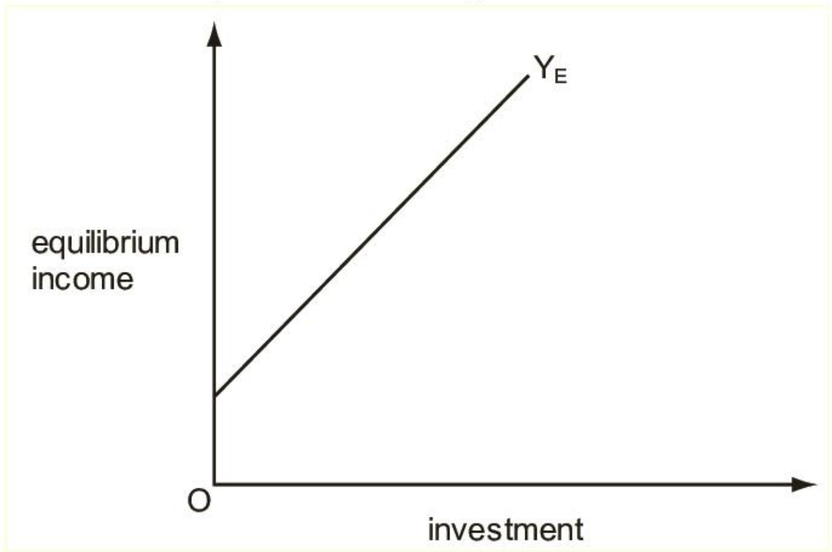
3. O/N 16/P31/Q24, M/J 04/P3/Q17

In a closed economy with no government sector the multiplier shows the impact of a change in

A consumption on investment
B investment on national income
C national income on consumption
D national income on investment

4. M/J 12/P32/Q21

In the diagram, Y_E indicates the equilibrium level of income corresponding to different levels of investment. What does the slope of the line Y_E measure?



A the investment multiplier
B the marginal propensity to save
C the rate of growth of investment
D the rate of growth of national income

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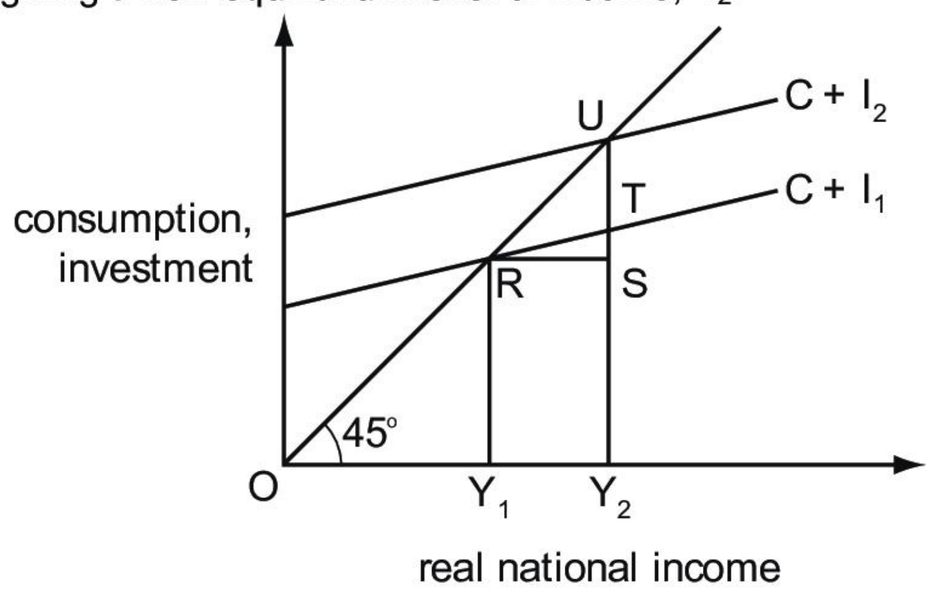
5. O/N 07/P3/Q21

The diagram shows a two-sector economy. Initially consumption is C, investment is I_1 and the equilibrium level of income is Y_1. Investment increases to I_2 giving a new equilibrium level of income, Y_2.

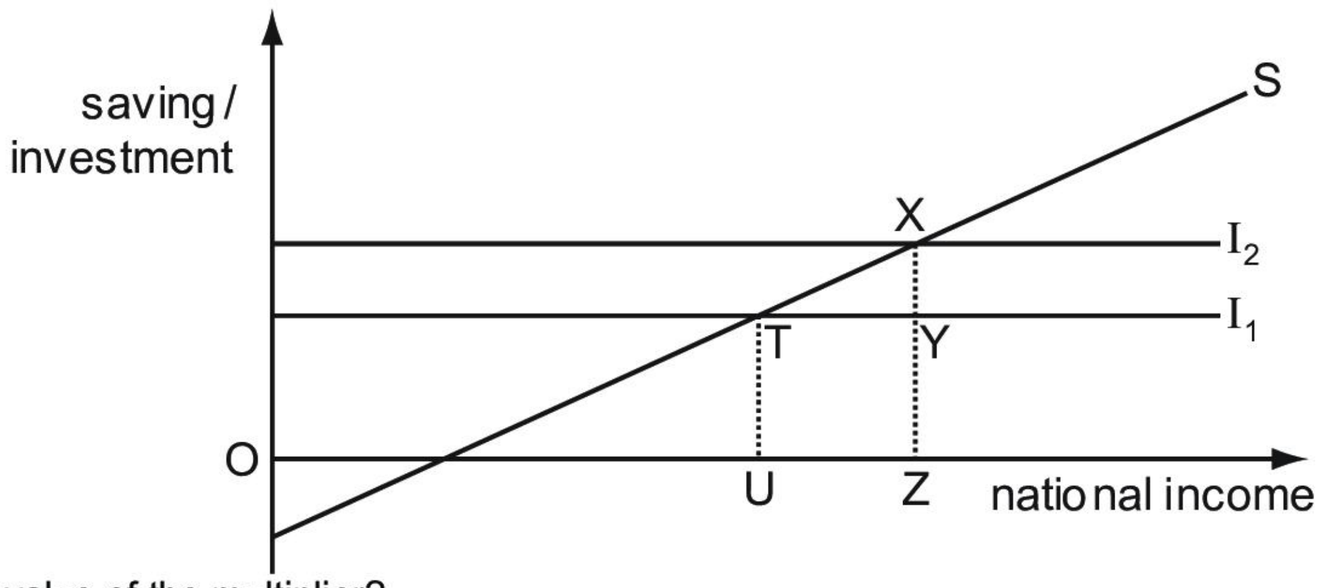


What is the value of the multiplier?

A $\frac{RS}{TU}$ **B** $\frac{RS}{RU}$ **C** $\frac{RU}{TU}$ **D** $\frac{TU}{RU}$

6. M/J 07/Q22, M/J 93

The diagram shows the equilibrium levels of national income in a closed economy with no government, at two levels of investment, I_1 and I_2.

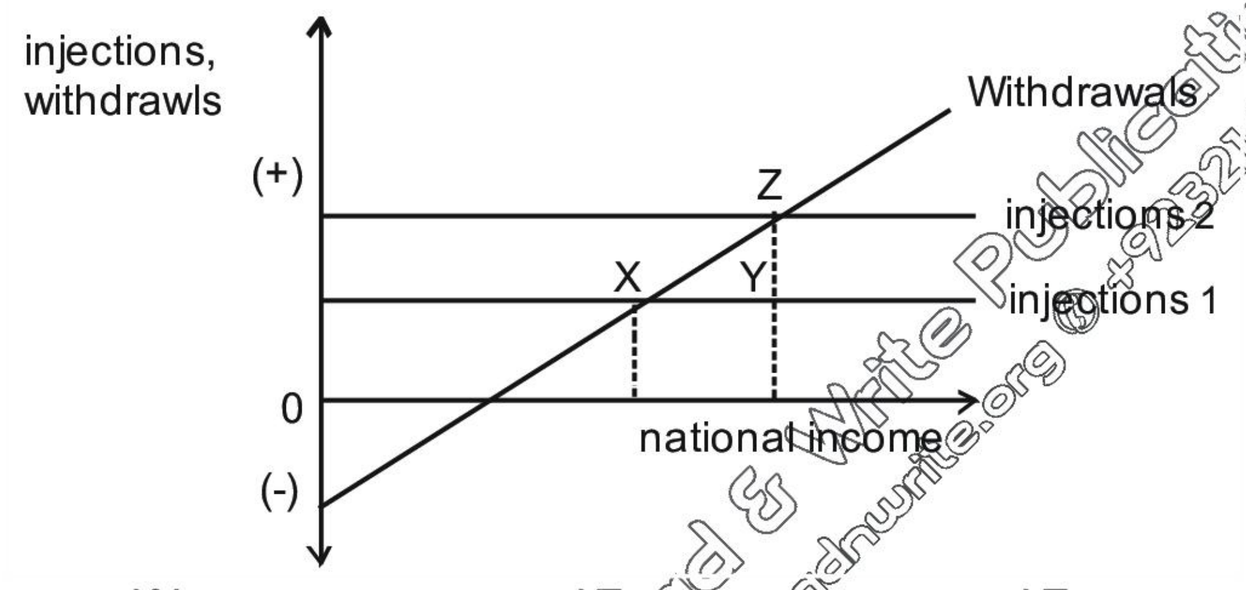


Which ratio gives the value of the multiplier?

A $\frac{TX}{UZ}$ **B** $\frac{UZ}{TX}$ **C** $\frac{UZ}{XY}$ **D** $\frac{XY}{UZ}$

7. M/J 94/P3, M/J 86, M/J 81

The diagram shows schedules of injections and withdrawals with respect to income.
Which ratio represents the value of the multiplier?



A $\frac{XY}{XZ}$ **B** $\frac{XY}{YZ}$ **C** $\frac{XZ}{XY}$ **D** $\frac{YZ}{XY}$

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8. M/J 15/P32/Q21
In a closed economy with no government, investment increases by $400.
At the new equilibrium level of income, consumption has increased by $1200.
What is the value of the investment multiplier?
A 2 **B** 3 **C** 4 **D** 8

9. M/J 15/P33/Q20
In a closed economy with no government, the value of the investment multiplier is 4.
By how much will consumption increase, if investment increases by $200?
A $50 **B** $350 **C** $600 **D** $800

10. O/N 11/P31/Q16, O/N 11/P33/Q15
In a closed economy with no government, the value of the investment multiplier is 5.
By how much will **consumption** increase, if investment increases by $300?
A $540 **B** $1000 **C** $1200 **D** $1500

11. M/J 95,M/J 98/P3
In a closed economy with no government, the value of the investment multiplier is 3.
By how much will consumption increase, if investment increase by £300m.
A £ 100 **B** £ 200 **C** £ 600 **D** £ 900

12. M/J 02/P3/Q21, O/N 98, Dec. 85
The marginal propensity to consume in a country is 0.9 and the average propensity is 0.8.
What is the value of the multiplier?
A 1.1 **B** 1.25 **C** 5 **D** 10

13. M/J 90/P3/Q28
In a closed economy with no government, an increase in income causes an increase in consumption equal to 75% of the increase in income.
What is the value of the multiplier?
A 4 **B** $1\frac{3}{4}$ **C** $1\frac{1}{3}$ **D** $\frac{3}{4}$

14. Dec. 87,O/N 97/P3
The information in the table relates to a closed economy.
Y = national income
AD = aggregate demand= C+I+G

C = consumption expenditure= 0.5Y + $ 100 billion
I = investment expenditure= $200 billion
G = government expenditure= $ 150 billion
What is the value of the multiplier?
A 4 **B** 2 **C** 1 **D** ½

15. O/N 93/P3
Given that the marginal propensity to consume is less than unity, then an increase in investment expenditure will lead to
A change in the value of the multiplier
B an equal increase in the national income
C a multiple increase in the national income.
D a fall in the propensity to save

16. M/J 05/P3/18
In a closed economy with no government, consumption is three-quarters of income at all levels of income. The present equilibrium level of income is $220 million. The full employment level of income is $240 million.
By how much would investment have to increase to reach full employment?
A $5 million **B** $15 million **C** $20 million **D** $30 million

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17. M/J 14/P32/Q19

In a closed economy with no government, consumption is 4/5 of income at all levels of income.
The present equilibrium level of income is $220 million.
The full employment level of income is $240 million.
By how much would investment have to increase to reach full employment?

A $2 million **B** $4 million **C** $16 million **D** $20 million

18. M/J 13/P31/Q17

A closed economy with no government has a marginal propensity to consume of 0.9. Its full employment national income is $60 000 m. Its current national income is $40 000 m.
To achieve full employment, by how much must investment be increased?

A $2000 m **B** $6000 m **C** $18 000 m **D** $20 000 m

19. O/N 15/P33/Q19, O/N 12/P32/Q18

In a closed economy with no government, the equilibrium level of income is $22 million, the full employment level of income is $25 million and there is a deflationary gap of $1 million.
What can be concluded from this information?

A The level of investment is $3 million.
B The marginal propensity to consume is $\frac{1}{3}$.
C The marginal propensity to consume is $\frac{2}{3}$.
D The value of the investment multiplier is $1\frac{1}{2}$.

20. M/J 12/P33/Q20

In a closed economy with no government, the equilibrium level of income is $25 million, the full employment level of income is $30 million and there is a deflationary gap of $1 million.
What can be deduced from this information?

A The level of investment is $5 million.
B The marginal propensity to consume is $\frac{4}{5}$.
C The marginal propensity to consume is $\frac{5}{6}$
D The value of the investment multiplier is 1.5.

21. O/N 00/P3, M/J 84

if in a closed economy with no government sector, investment is increased $100m (in real terms), real income will increase by $I000m if the marginal propensity to consume is

A 0.01 **B** 0.10 **C** 0.90 **D** 0.00

22. O/N 90/P3, M/J 84

In a closed economy with no government, and where investment is given, the saving function is S = sY – 100. (C = consumption, S =savings, Y = income and s is the marginal propensity to save) If the multiplier is 5, it follows that

A S = 0.8Y – 100 **B** S = 0.2Y – 20 **C** C = 20 + 0.2Y **D** C = 100 + 0.8Y

23. O/N 90/P3/Q31

In a simple model of income determination, income is equal to consumption plus investment. Consumption is two third of income. The present equilibrium level of income is $150 million.
By how much must investment be increased to raise the equilibrium level of income to $ 180 million?

A $ 10 million **B** $ 20 million **C** $ 30 million **D** $ 60 million

24. O/N 13/P31/Q19

When national income equals $30 000 million and government spending equals $15 000 million, an economy is in equilibrium below full employment. Out of every increase of $100 in national income, $10 is taken in taxes, $25 is spent on imports and $15 is saved.
To raise national income to the full employment level of $50 000 million, to which level will the government need to raise its own spending?

A $20 000 million **B** $25 000 million **C** $30 000 million **D** $35 000 million

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25. M/J 10/P32/Q19

When national income equals $40 000 million and government spending equals $15 000 million, an economy is in equilibrium below full employment. Out of every increase of $100 in national income, $15 is taken in taxes, $30 is spent on imports and $5 is saved.

To raise national income to the full employment level of $50 000 million, to which level will the government need to raise its own spending?

A $15 500 million **B** $20 000 million **C** $25 000 million **D** $35 000 million

26. O/N 09/P32/Q19

Out of any addition to national income, 20 % is spent on imports, 15 % is paid in taxes, 5 % is saved and the rest is spent on domestically-produced goods.
What is the value of the multiplier?

A 2.5 **B** 5 **C** 6 **D** 20

27. O/N 05/P3/Q19

What is the value of the multiplier in an economy with no government where the marginal propensity to save is $\frac{1}{6}$ and the marginal propensity to import is $\frac{1}{3}$.

A $\frac{1}{2}$ **B** $1\frac{1}{2}$ **C** 2 **D** 3

28. O/N 03/P3/Q22

Out of any addition to national income, 20 % is spent on imports, 25 % is paid in taxes, 5 % is saved and the rest is spent on domestically produced goods.
What is the value of the multiplier?

A 20 **B** 5 **C** 2 **D** 0.5

29. M/J 90/P3

When, national income equals $30 000 million and government spending equals £ 15000 million, in economy is in equilibrium below full employment. Out of every increase of $100 in national income, $10 is taken in taxes, $25 is spent on imports and $15 is saved.
To raise national income of the full employment level of $50 000 million, to which level will the government need to raise its own spending?

A $20 000 million **B** $25 000 million **C** $30 000 million **D** $35 000 million

30. O/N 99/P3/Q34

In 1998 a country's Gross Domestic Product was $ 1000 billion and exports and imports were both $200 billion. In 1999 exports are forecast to increase by 4%.

Assuming that price levels remain constant and that the marginal propensity to import is $\frac{1}{4}$, what is the maximum rate at which GDP can grow without causing a deterioration in the balance of trade?

A 1.0% **B** 2.4% **C** 3.2% **D** 4.0%

31. O/N 96/P3/Q34

In 1995 a country's Gross Domestic Product was $1000 billion exports and imports were both $200 billion. In 1996 exports are forecast to increase by 3%.
Assuming that price levels remain constant and that the marginal propensity to import is 1/3, what is the maximum rate at which GDP can grow without causing a deterioration in the balance of trade?

A 1.0% **B** 1.8% **C** 2.7% **D** 3.0%

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32. M/J 96,M/J 99/P3

A country has a marginal propensity to save of 0.3 and a marginal propensity to import of 0.1. There are no taxes.
Other things being equal, by how much will a rise of £10 bn on in exports increase national income and improve the balance of trade?

	Increase in national income	improvement in balance of trade
A	£25 bn	£2.5bn
B	£25bn	£7.5bn
C	£40 bn	£4.bn
D	£40bn	£10 bn

33. M/J 91,M/J 01/P3/Q33

The table shows how an extra £100 gross income is allocated in an economy.

	£
Consumption of home-produced goods	50
Imports	15
Savings	10
Taxes	25

If exports rise by £ I million, what is eventual change in national income and the government's tax revenue?

	National income	**Tax revenue**
A	rises by £2 million	rises by £0.25 million
B	rises by £2 million	rises by £0.5 million
C	rises by £4 million	rises by £ 1 million
D	rises by £4 million	stays constant

34. O/N 11/P32/Q18

In a closed economy, households pay $0.10 in tax on every $1 increase in their gross income, and spend 5/6 of every increase in their disposable income.
What is the value of the multiplier?

A 1.5 **B** 4.0 **C** 6.0 **D** 7.5

35. O/N 04/P3/Q21

In a closed economy, households pay $0.40 in tax on every $1 increase in their gross income, and spend 5/6 of every increase in their disposable income.
What is the value of the multiplier?

A 2 **B** $2\frac{1}{2}$ **C** 3 **D** 6

36. O/N 96/P32/Q23

In a closed economy, households pay $0.20 tax on every $ 1 increase in their gross income, and spend $\frac{3}{4}$ of every increase in their disposable income.
What is the value of the multiplier?

A $2\frac{1}{2}$ **B** $3\frac{1}{5}$ **C** $6\frac{2}{5}$ **D** 20

37. M/J 16/P32/Q30, M/J 13/P32/Q29

What will increase the multiplier effect of an increase in government spending on national income?

A an increase in direct taxation
B an increase in interest rates
C an increase in the marginal propensity to consume
D an increase in the marginal propensity to import

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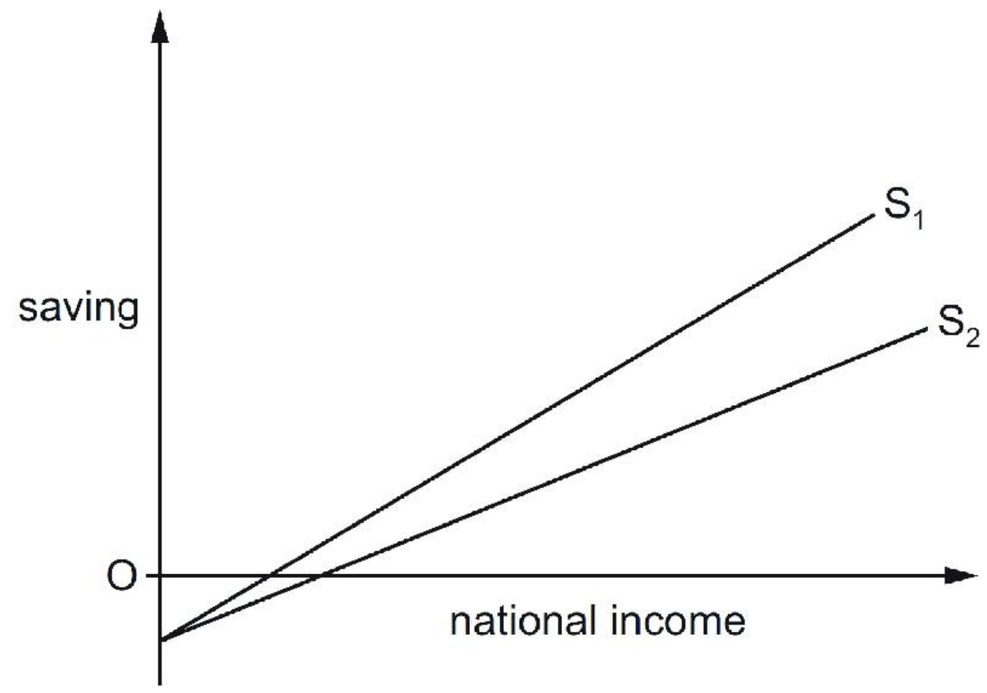
38. O/N 15/P31/Q19

In the diagram, S_1 is an economy's initial saving function.

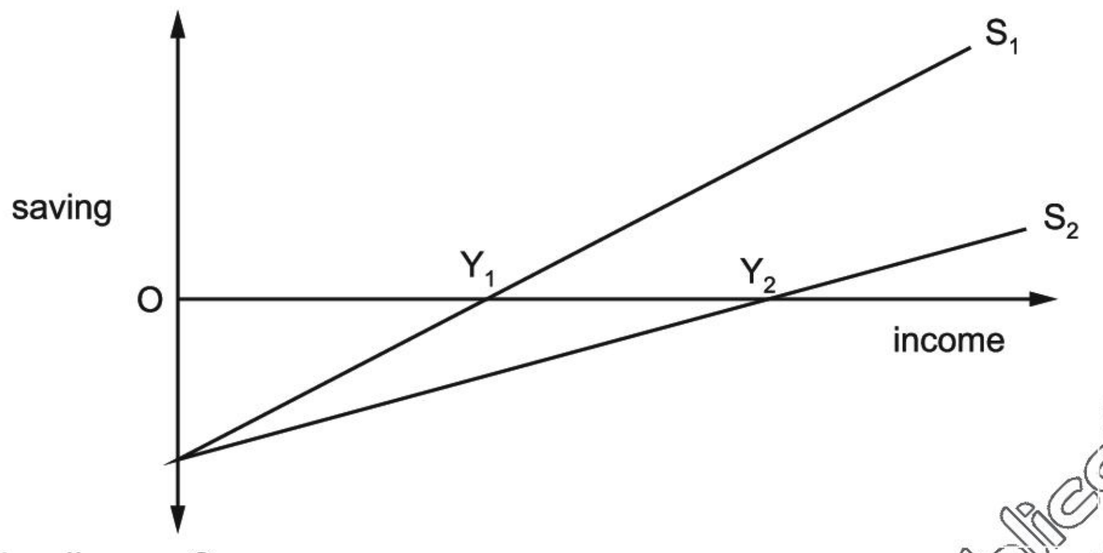


If the saving function shifts to S_2, what effect will this have on the marginal propensity to consume and on the multiplier?

	marginal propensity to consume	multiplier
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

39. O/N 14/P33/Q20

The diagram shows a shift in the economy's saving function from S_1 to S_2.



What can be deduced from the diagram?

A Autonomous consumption has increased.

B Equilibrium national income has increased from OY_1 to OY_2.

C The marginal propensity to save has increased.

D The multiplier has increased.

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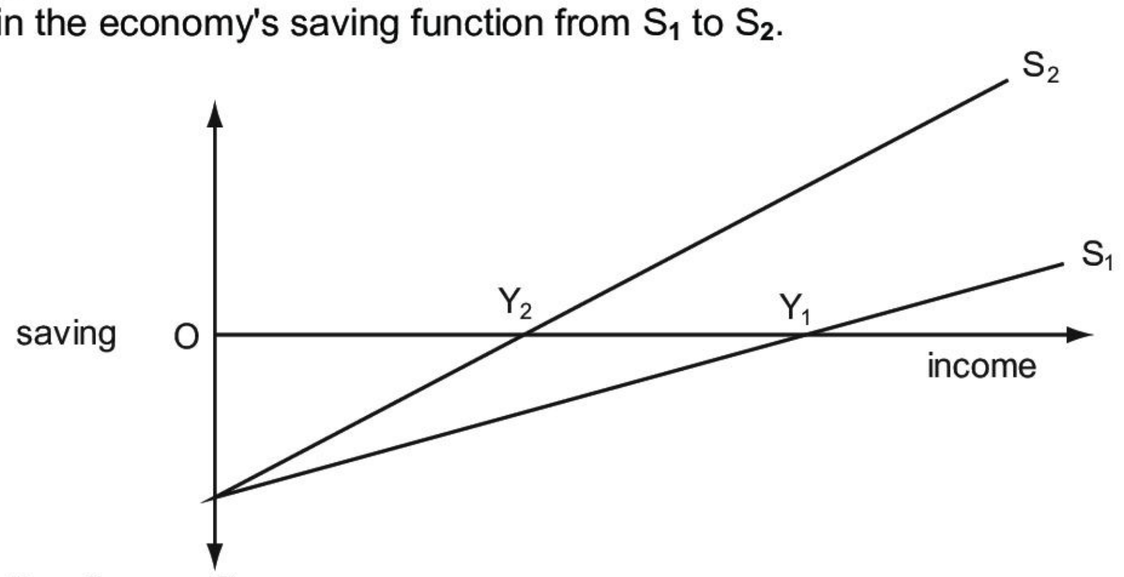
40. M/J 17/P33/Q20, M/J 05/P3/Q19

The diagram shows a shift in the economy's saving function from S_1 to S_2.



What can be deduced from the diagram?

A The multiplier has increased.

B The marginal propensity to save has increased.

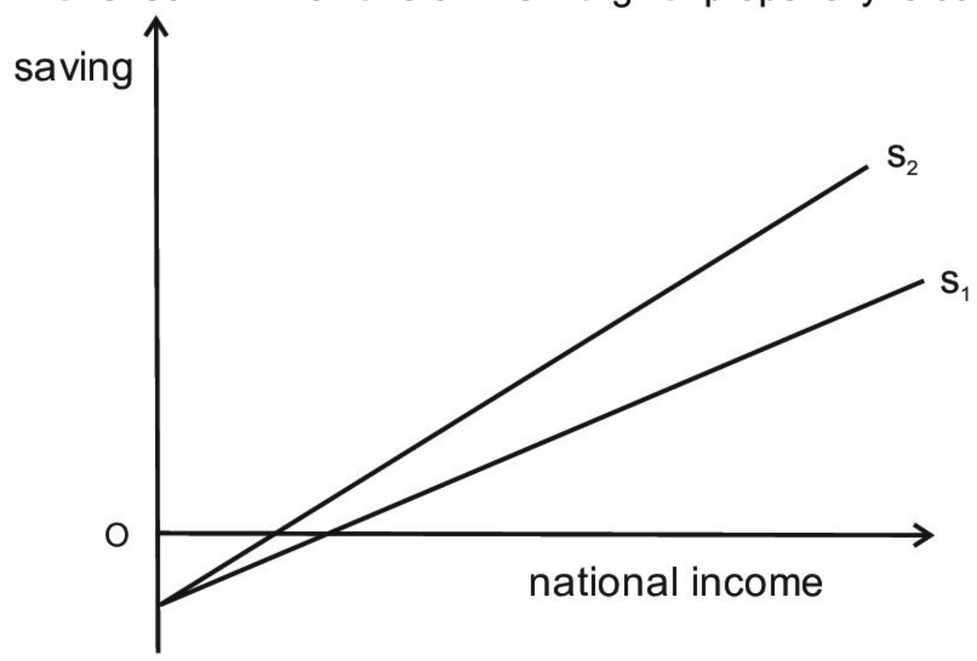
C Autonomous consumption has increased.

D Equilibrium national income has fallen from OY_1 to OY_2.

41. O/N 95,M/J 98,O/N 01/P3

In the diagram, S_1 an economy's initial function.

If the saving function shift to S_2, what effect will this have on the marginal propensity to consumer and on the multiplier?



	Marginal propensity to consume	Multiplier
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

42. M/J 15/P32/Q20

The national income is initially in equilibrium.

If there is an increase in exports, which change of equivalent value will restore national income to its initial equilibrium level?

A a decrease in imports

B a decrease in investment

C an increase in government expenditure on goods and services

D a reduction in taxation

43. O/N 01/P3/Q22

The national income is initially in equilibrium.

If there were a decrease in exports, which change of equivalent value would restore national income to its initial equilibrium level?

A an increase in investment

B an increase in saving

C a reduction in government expenditure on goods and services

D a reduction in taxation

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Answers Section

1. D

In theory of multiplier, any autonomous injection leads to multiple change in national income. Therefore

$$K = \frac{\Delta Y}{\Delta I}$$

2. D

By definition $K = \frac{\Delta Y}{\Delta I}$

3. B

Multiplier effect is the effect of autonomous change in injection on national income which is shown in option B.

4. A

The investment multiplier measures the change in equilibrium income with respect to a change in investment. The investment multiplier formula is (change in income/change in investment), and that is exactly the slope of the Y_E line so option A is the right answer. The marginal propensity to save can be measured when a curve is drawn with savings on the x-axis. The rate of growth can only be measured with time on the x-axis so option C and D are incorrect.

5. A

By definition $K = \frac{\Delta Y}{\Delta AE} = \frac{RS}{TU}$

6. C

By definition $K = \frac{\Delta Y}{\Delta AE} = \frac{UZ}{XY}$

7. B

By definition $K = \frac{\Delta Y}{\Delta I} = \frac{XY}{YZ}$

8. C

$\Delta I = \$400$ $\Delta C = \$1200$ $\Delta Y = \Delta C + \Delta I = 1600$ $K = \frac{\Delta Y}{\Delta I} = \frac{1600}{400} = 4$

9. C

$K=4$ $\Delta I = \$200$ $K = \frac{\Delta Y}{\Delta I} \Rightarrow \Delta Y = K \times \Delta I = 4 \times 200 = \$800$

As $\Delta Y = \Delta C + \Delta I \Rightarrow \Delta C = \Delta Y - \Delta I = 800 - 200 = \$600$

10. C

$K=5$ $\Delta I = \$300$ $K = \frac{\Delta Y}{\Delta I} \Rightarrow \Delta Y = K \times \Delta I = 5 \times 300 = \$1500$

As $\Delta Y = \Delta C + \Delta I \Rightarrow \Delta C = \Delta Y - \Delta I = 1500 - 300 = \$1200$

11. C

$K=3$ $\Delta I = £300$ $K = \frac{\Delta Y}{\Delta I} \Rightarrow \Delta Y = K \times \Delta I = 3 \times 300 = \$900$

As $\Delta Y = \Delta C + \Delta I \Rightarrow \Delta C = \Delta Y - \Delta I = 900 - 300 = \$600$

12. D

MPC = 0.9

$$K = \frac{1}{1 - MPC} = \frac{1}{1 - 0.9} = \frac{1}{0.1} = 10$$

13. A

$MPC = \frac{75}{100} = 0.75 \Rightarrow K = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75} = \frac{1}{0.25} = 4$

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14. B

MPC =0.5 $\Rightarrow$ $K = \frac{1}{1-MPC} = \frac{1}{1-0.5} = \frac{1}{0.5} = 2$

15. C

Given

MPC < 1 As $K = \frac{1}{1-MPC}$

As MPC is less than 1, therefore the multiplier effect will be greater than one.

16. A

As

$MPC = \frac{3}{4} = 0.75$ Y_1=\$4220 Y_2=\$240 rY= 240 – 220=\$20

$K = \frac{1}{1-MPC} = \frac{1}{1-0.75} = \frac{1}{0.25} = 4 \Rightarrow K = \frac{\Delta Y}{\Delta I} \Rightarrow \Delta I = \frac{\Delta Y}{K} = \frac{20}{4} = \$5m$

17. B

As

$MPC = \frac{4}{5} = 0.8$ Y_1=\$220 Y_2=\$240 rY= 240 – 220=\$20

$K = \frac{1}{1-MPC} = \frac{1}{1-0.8} = \frac{1}{0.2} = 5 \Rightarrow K = \frac{\Delta Y}{\Delta I} \Rightarrow \Delta I = \frac{\Delta Y}{K} = \frac{20}{5} = \$4m$

18. A

As

$MPC = \frac{4}{5} = 0.8$ Y_1=\$40 000 Y_2=\$60 000 rY= 60 000 – 40 000=\$20 000

$K = \frac{1}{1-MPC} = \frac{1}{1-0.9} = \frac{1}{0.1} = 10 \Rightarrow K = \frac{\Delta Y}{\Delta I} \Rightarrow \Delta I = \frac{\Delta Y}{K} = \frac{20000}{10} = \$2000m$

19. C

As

Y_1=\$22 m Y_2=\$25 m rY= 25 – 22 = \$3 m

Deflationary gap = rAE = \$1 m

$K = \frac{\Delta Y}{\Delta AE} = \frac{3}{1} = 3$ $K = \frac{1}{1-MPC} \Rightarrow 1 - MPC = \frac{1}{K} \Rightarrow MPC = 1 - (\frac{1}{K}) = 1 - \frac{1}{3} = \frac{3-1}{3} = \frac{2}{3}$

20. B

As

Y_1=\$25 m Y_2=\$30 m rY= 30 – 25 = \$5 m

Deflationary gap = rAE = \$1 m

$K = \frac{\Delta Y}{\Delta AE} = \frac{5}{1} = 5$ $K = \frac{1}{1-MPC} \Rightarrow 1 - MPC = \frac{1}{K} \Rightarrow MPC = 1 - (\frac{1}{K}) = 1 - \frac{1}{5} = \frac{5-1}{5} = \frac{4}{5}$

21. C

As $K = \frac{\Delta Y}{\Delta I} = \frac{1000}{100} = 10$

$K = \frac{1}{1-MPC} \Rightarrow 1 - MPC = \frac{1}{K} \Rightarrow MPC = 1 - (\frac{1}{K}) = 1 - \frac{1}{10} = \frac{10-1}{10} = \frac{9}{10} = 0.9$

22. D

As $K = \frac{1}{1-MPC} \Rightarrow 1 - MPC = \frac{1}{K} \Rightarrow MPC = 1 - (\frac{1}{K}) = 1 - \frac{1}{5} = \frac{5-1}{5} = \frac{4}{5} = 0.8$

If MPC = 0.8 then MPS=1-MPC=1-0.8=0.2

According to the statement

C_0=100 therefore $-S_0$= -100 $\Rightarrow$ Hence option B and C are ruled out.

Option A states that MPS = 0.8 which is also incorrect.

Hence only option D is correct.

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23. A

As

$MPC=\frac{2}{3}$ $Y_1=\$150m$ $Y_2=\$180m$ $rY= 180 - 150=\$30m$

$K=\frac{1}{1-MPC}=\frac{1}{1-\frac{2}{3}}=\frac{1}{\frac{3-2}{3}}=\frac{1}{\frac{1}{3}}=3 \Rightarrow K=\frac{\Delta Y}{\Delta I} \Rightarrow \Delta I=\frac{\Delta Y}{K}=\frac{30}{3}=\$10m$

24. B

As

$MPT=\frac{10}{100}=0.1$ $MPT=\frac{25}{100}=0.25$ $MPS=\frac{15}{100}=0.15$

$K=\frac{1}{MPS+MPT+MPM}=\frac{1}{0.15+0.25+0.1}=\frac{1}{0.5}=2$

$Y_1=\$30\ 000$ $Y_2=\$50\ 000$ $rY= 50\ 000 - 30\ 000 = \$20\ 000$

$K=\frac{\Delta Y}{\Delta I} \Rightarrow \Delta I=\frac{\Delta Y}{K}=\frac{20}{5}=\$4m$

25. B

As

$MPT=\frac{15}{100}=0.15$ $MPT=\frac{30}{100}=0.3$ $MPS=\frac{5}{100}=0.05$

$K=\frac{1}{MPS+MPT+MPM}=\frac{1}{0.05+0.15+0.30}=\frac{1}{0.5}=2$

$Y_1=\$40\ 000$ $Y_2=\$50\ 000$ $rY= 50\ 000 - 40\ 000 = \$10\ 000$

$K=\frac{\Delta Y}{\Delta G} \Rightarrow \Delta G=\frac{\Delta Y}{K}=\frac{10000}{2}=\$5000 \Rightarrow G_2 = G_0\, G\, G_1 = 15\ 000 + 5\ 000 = \$20{,}000m$

26. A

$MPM=\frac{20}{100}=0.2$ $MPT=\frac{15}{100}=0.15$ $MPS=\frac{5}{100}=0.05$

$K=\frac{1}{MPS+MPT+MPM}=\frac{1}{0.05+0.15+0.20}=\frac{1}{0.4}=2.5$

27. C

$MPS=\frac{1}{6}$ $MPM=\frac{1}{3}$

$K=\frac{1}{MPS+MPM}=\frac{1}{\frac{1}{6}+\frac{1}{3}}=\frac{1}{\frac{1+2}{6}}=\frac{1}{\frac{3}{6}}=\frac{6}{3}=2$

28. C

From the statement

$MPM=\frac{20}{100}=0.2$ $MPT=\frac{25}{100}=0.25$ $MPS=\frac{5}{100}=0.05$

$K=\frac{1}{MPS+MPT+MPM}=\frac{1}{0.05+0.25+0.20}=\frac{1}{0.5}=2$

29. B

From the statement

$Y_1 = \$30{,}000m$ $Y_2 = \$50{,}000m$ $rY=50{,}000 - 30{,}000 =\$20{,}000$ $G = \$5{,}000m$

$MPM=\frac{25}{100}=0.25$ $MPT=\frac{10}{100}=0.10$ $MPS=\frac{15}{100}=0.15$

$K=\frac{1}{MPS+MPT+MPM}=\frac{1}{0.15+0.10+0.25}=\frac{1}{0.5}=2$

Using Government spending multiplier

$K=\frac{\Delta Y}{\Delta G} \Rightarrow \Delta G=\frac{\Delta Y}{K}=\frac{20000}{2}=\$10{,}000$

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30. C

Given in 1998

Initial Y = GDP = \$1000b

And

X=M=\$200b and MPM = $\frac{1}{4}$

In 1999

Increase in exports = $\frac{4}{100} \times 200 = \$8b$

Therefore in order to prevent deterioration, X = M = \$8b
So using MPM formula

MPM= = $\frac{\Delta M}{\Delta Y} \Rightarrow \frac{1}{4} = \frac{8}{\Delta Y} \Rightarrow \Delta Y = 8 \times 4 = 32$

Therefore increase in GDP is expected to be \$32b
In order to convert it into percentage;

Percentage increase in national income = $\frac{\text{change}}{\text{original}} \times 100 = \frac{32}{1000} \times 100 = 3.2\%$

31. B

Given in 1995

Initial Y = GDP = \$1000b

And

X=M=\$200b and MPM = $\frac{1}{3}$

In 1999

Increase in exports = $\frac{3}{100} \times 200 = \$6b$

Therefore in order to prevent deterioration, X = M = \$6b
So using MPM formula

MPM= $\frac{\Delta M}{\Delta Y} \Rightarrow \frac{1}{3} = \frac{6}{\Delta Y} \Rightarrow \Delta Y = 6 \times 3 = \$18b$

Therefore increase in GDP is expected to be \$18b
In order to convert it into percentage;

Percentage increase in national income = $\frac{\text{change}}{\text{original}} \times 100 = \frac{18}{1000} \times 100 = 1.8\%$

32. B

MPS = 0.3 MPM= 0.1 rX = £10m

$K = \frac{1}{MPS + MPM} = \frac{1}{0.3 + 0.1} = \frac{1}{0.4} = 2.5$

Using Export multiplier $K = \frac{\Delta Y}{\Delta X} \Rightarrow 2.5 = \frac{\Delta Y}{10} \Rightarrow \Delta Y = 2.5 \times 10 = \$25m$

In order to calculate balance of trade, we need to calculate imports as well

$MPM = \frac{\Delta M}{\Delta Y} \Rightarrow 0.1 = \frac{\Delta M}{25} \Rightarrow \Delta M = 0.1 \times 25 = 2.5$

Change in Balance of trade =rX - rM = $10 - 2.5 = £7.5m$
Hence option B is the right choice.

33. B

$MPC = \frac{\Delta C}{\Delta Y} = \frac{50}{100} = 0.5$ $MPM = \frac{\Delta M}{\Delta Y} = \frac{15}{100} = 0.15$ $MPT = \frac{\Delta T}{\Delta Y} = \frac{25}{100} = 0.25$

$K = \frac{1}{1 - MPC} = \frac{1}{1 - 0.5} = \frac{1}{0.5} = 2$ Þ $K = \frac{\Delta Y}{\Delta X} \Rightarrow \Delta Y = K \times \Delta X = 2 \times 1 = 2m$

As MPT = 0.25 And rY = \$2m
The change in tax revenue is as follows:

$MPT = \frac{\Delta T}{\Delta Y} \Rightarrow \Delta T = MPT \times \Delta Y = 0.25 \times 2 = 0.5m$

Hence tax revenue rose by \$0.5 million

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34. B

MPT = 0.1

If Y= $1

Disposable income = Income – Tax = 1 – 0.1 = 0.9

MPC out of disposable income $= \frac{5}{6} \times (0.9) = \frac{5}{6} \times \frac{9}{10} = \frac{3}{4}$

$K = \frac{1}{1 - MPC} = \frac{1}{1 - \frac{3}{4}} = \frac{1}{\frac{4-3}{4}} = \frac{1}{\frac{1}{4}} = 4$

35. A

MPT = 0.4

If Y= $1

Disposable income = Income – Tax = 1 – 0.4 = 0.6

MPC out of disposable income $= \frac{5}{6} \times (0.6) = \frac{5}{6} \times \frac{6}{10} = \frac{1}{2} = 0.5$

$K = \frac{1}{1 - MPC} = \frac{1}{1 - 0.5} = \frac{1}{0.5} = 2$

36. A

MPT = 0.20

If Y= $1

Disposable income = Income – Tax = 1 – 0.20 = 0.80

MPC out of disposable income $= \frac{3}{4} \times (0.8) = \frac{3}{4} \times \frac{8}{10} = \frac{3}{5}$

$K = \frac{1}{1 - MPC} = \frac{1}{1 - \frac{3}{5}} = \frac{1}{\frac{5-3}{5}} = \frac{1}{\frac{2}{5}} = \frac{5}{2} = 2\frac{1}{2}$

37. C

The multiplier formula is 1/ MPW which is [1/(MPS+MPT+MPM)] so if the value of the denominator goes down the value of the multiplier goes up. An increase in direct taxation increases MPT (marginal propensity to tax) so this will reduce multiplier value. Interest rate does not have an impact on multiplier. MPC + MPS=1 so if MPC increases MPS must go down. The lower MPS will make the denominator smaller and increase the value of the multiplier. An increase MPM will make the multiplier smaller, so option C is correct.

38. D

As saving function becomes flatter, therefore MPS decreases which means an increase in MPC and stronger multiplier.

39. D

As saving function becomes flatter, therefore MPS decreases which means an increase in MPC and stronger multiplier.

40. B

When saving function rises from S_1 to S_2, the gradient of the function increases. This means MPS has increased.

41. A

When saving function shifts from S_1 to S_2, the gradient of function increases. This means MPS has increased.

As MPC + MPS = 1

So when MPS increases , this will lead to decrease in MPC.

Moreover $K = \frac{1}{1 - MPC}$

With decrease in MPC, the denominator in the formula increases, leading to decrease in multiplier.

42. B

Exports are autonomous therefore an equivalent and autonomous decrease in investment will have opposite multiplier effect and restore the equilibrium to initial level.

43. A

By definition

$Y = C + I + G + X - M$

A decrease in exports will decrease national income. Among given options, saving and taxes cannot affect national income with same proportion as of decrease in exports whereas decrease in government spending (G) will further decrease national income. Therefore only increase in investment (I) will restore national income to original level.

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15.6 Accelerator (a)

1. **M/J 16/P33/Q26**
Investment is involved in both the accelerator and the multiplier.
What is the nature of the investment in each case?

	accelerator	multiplier
A	autonomous	autonomous
B	autonomous	induced
C	induced	autonomous
D	induced	induced

2. **M/J 15/P33/Q18**
What, according to the accelerator principle, will cause the level of investment to fall?
A a decrease in confidence
B a decrease in the rate of growth of national income
C an increase in the price of capital equipment
D an increase in the rate of interest

3. **M/J 14/P32/Q18**
What will cause the level of investment to fall according to the accelerator model?
A a decrease in business confidence
B a decrease in the rate of growth of national income
C an increase in the price of capital equipment
D an increase in the rate of interest

4. **O/N 17/P32/Q23, M/J 06/P3/Q21**
What does the accelerator principle state?
A Consumption is a function of the rate of change of income.
B Income is a function of the rate of change of investment.
C Investment is a function of the rate of change of income.
D Investment is a function of the rate of interest.

5. **M/J 18/P32/Q26, O/N 05/P3/Q18**
According to the accelerator theory, what determines this year's net investment?
A last year's consumption
B last year's output
C the change in last year's output
D the change in last year's investment

6. **O/N 04/P3/Q20**
The accelerator principle refers to a relationship between investment and
A the level of GDP.
B changes in GDP.
C the level of interest rates.
D changes in interest rates.

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7. O/N 12/P32/Q19

The table gives the national income of a country over six years.

year	national income (Y)
1	2100
2	2110
3	2125
4	2135
5	2140
6	2135

According to the accelerator principle, in which year did net investment first fall to a level below that of the previous year?

A year 3 **B** year 4 **C** year 5 **D** year 6

8. O/N 09/P32/Q18, O/N 94,M/J 98

The table gives the national income of a country over six years.

Year	National income (Y)
1	2100
2	2110
3	2125
4	2145
5	2160
6	2170

According to the accelerator principle, in which year did net investment first fall to a level below that of the previous year?

A year 3 **B** year 4 **C** year 5 **D** year 6

9. M/J 98/P3, O/N 94, Dec. 86

The table gives the national income of a country over six years.

Year	National income (Y)
1	2100
2	2105
3	2115
4	2130
5	2140
6	2145

There is an 'accelerator' relationship of the form $\mathbf{I_t = v(Y_t - Y_{t-1})}$, where v is a positive constant and $\mathbf{I_t}$ is net investment in year **t**.

In which year did investment first fall to a level below that of the previous year?

A year 3 **B** year 4 **C** year 5 **D** year 6

10. M/J 04/P3/Q20

A closed economy is initially in equilibrium with a national income of $100 million, and a capital stock of $25 million. Aggregate demand increases by $10 million.

According to the accelerator principle, by how much will net investment increase?

A $10 m **B** $5 m **C** $2.5 m **D** $2 m

11. M/J 03/P3/Q21

According to the accelerator theory

A net investment is positive if output is rising at an increasing rate.

B net investment may rise even if output rises at a declining rate.

C increases in investment occur when interest rates are falling.

D increases in investment will cause a more than proportionate increase in national income.

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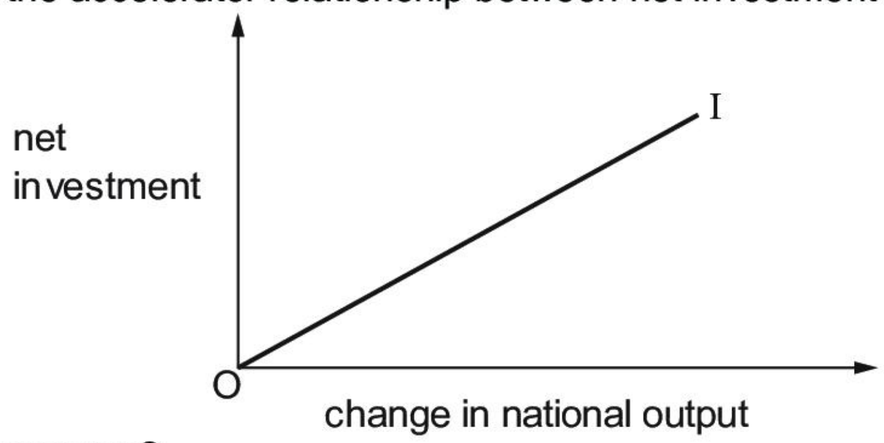
12. **O/N 02/P3/Q19, M/J 91**

In the diagram, the curve *I* depicts the accelerator relationship between net investment and the change in national output.



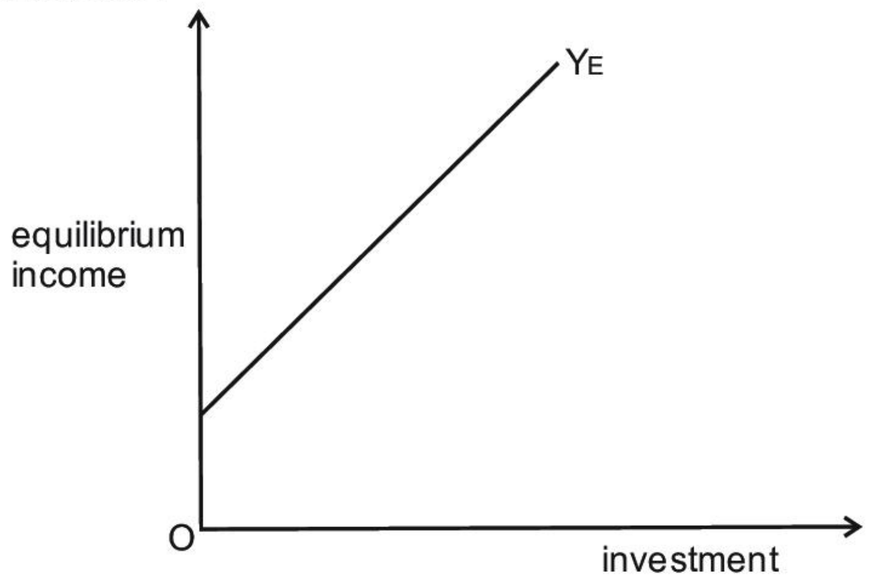
What does the slope of the curve measure?

A the capital-output ratio
B the marginal propensity to invest
C the marginal propensity to save
D the multiplier

13. **O/N 94,O/N 98/P3**

In the diagram Y_E indicates the equilibrium level of income corresponding to different levels of investment.

What does the slope of the line Y_E measure?



A the investment multiplier
B the marginal propensity to save
C the rate of growth of investment
D the rate of growth of national income

14. **M/J 94,O/N 98/P3**

What would cause the value of the accelerator to increase?

A a reduction in fax rates
B an increase in the capital-output ratio
C an increase in the saving ratio
D an increase in the marginal propensity to consume

15. **O/N 93/P3**

The accelerator theory of investment is based on the idea that investment is determined mainly by

A interest rates
B levels of saving
C the absolute level of national income
D the rate of change of national income

16. **M/J 92/P3**

In a closed economy with no government, the relationship between the equilibrium level of income (Y) and the level of investment (I) is given by the equation Y = 4 I.

Which of the following statements is correct?

A the marginal propensity to consume is ¼
B the marginal propensity to invest is 4
C the value of the accelerator is 4
D the value of the investment multiplier is 4

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Answers Section

1. C
Any autonomous change in injections leads to a multiple change in national income is multiplier. On the other hand, if national income increases at an increasing rate it will induce increase in net investment, is definition of accelerator.

2. B
according to accelerator principle, investment is the function of rate of growth of national income and therefore investment will fall when there is a decrease in the rate of growth of national income.

3. B
By definition the accelerator model attempts to link investment and national income. It states that an increase in national income will lead to increase in investment as well. This is because most firms will have to invest in additional plants and equipment in order to meet the growing demand for their products. Only option B lower growth will reduce income as firms will anticipate less rapid increase in demand and therefore delay investment projects. So option B is correct.

4. C
By definition, accelerator is based on the principle that net investment is a function of rate of change in output (income).

5. C
According to accelerator, there is a direct relationship between change in investment and change in national income.

6. B
By definition, accelerator is based on the principle that net investment is a function of rate of change in output (income).

7. B
The accelerator principle states that as the economy grows, net investment also increases in order for firms to handle the higher level of expenditure. Net investment will fall below that of previous year, when the change in national income is below that of previous year. So according to the table in year 3 national income increased by 15 whereas in year 4 it increased by only 10. So since growth fell, net investment into the economy also falls in year 4.

8. C
The question asks for decrease in change in investment.
This can be calculated by calculating. $Y_t - Y_{t-1}$

$Y_t - Y_1$

Year	Y	$Y_n - Y_{n-1}$
1	2100	-
2	2110	10
3	2125	15
4	2145	20
5	2160	15
6	2170	10

As seen through table, investment first fall to a level below of the previous year in fifth year.

9. C
The question asks for decrease in change in investment.
This can be calculated by calculating. $Y_t - Y_{t-1}$

$Y_t - Y_1$

Year		
1	2100	-
2	2105	5
3	2115	10
4	2130	15
5	2140	10
6	2145	5

As seen through table, investment first falls to a level below of the previous year in fifth year.

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10. C

Output = Y_o = \$100m Capital = I_o = \$25m $a=\frac{I_0}{Y_0}=\frac{25}{100}=0.25$

rY = \$10m and rI = a (rY) = 0.25 (10) = \$ 2.5m

11. A

According to accelerator, there is a direct relationship between change in investment and change in national income.

12. A

The slope measure $\frac{\Delta I}{\Delta Y}$. By definition this is accelerator or capital to output ratio.

13. A

The slope measure $\frac{\Delta Y}{\Delta I}$

By definition it is investment multiplier.

14. B

An increase in capital output ratio will increase accelerator MPC, saving ratio and tax ratio will not affect accelerator.

15. D

By definition, accelerator is based on the principle that net investment is a function of rate of change in output (income).

16. D

The relationship between investment and national income is stated by the equation, Y = 4I. The equation doesn't reflect MPC as in option 'A',

As Y = 4 I therefore $\frac{Y}{I}=4$ and $\frac{I}{Y}=\frac{1}{4}$

Accelerator ($\frac{I}{Y}$) can also be calculated but the option again states wrong value for accelerator. It should be $\frac{1}{4}$ instead of 4

However option D is correct as it correctly states investment multiplier = $\frac{Y}{I}=4$.

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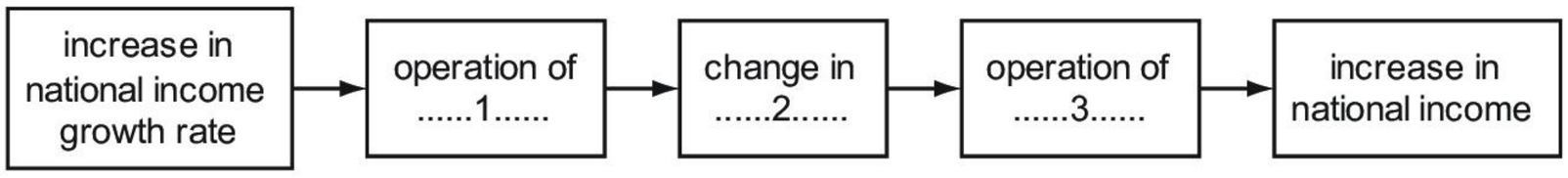
15.7 Multiple topics of chapter 15

1. M/J 13/P31/Q18

The diagram sets out how an increase in the rate of growth of national income can lead to a further increase in national income.



What must be inserted into the diagram at points 1, 2 and 3?

	1	2	3
A	the accelerator	induced investment	the accelerator
B	the accelerator	induced investment	the multiplier
C	the multiplier	autonomous investment	the accelerator
D	the multiplier	autonomous investment	the multiplier

2. O/N 14/P14/Q20

In an economy in which there is full employment, the marginal propensity to consume of pensioners is greater than that of taxpayers. Government expenditure on pensions is decreased by $20 billion.
To maintain full employment, taxation must be

A increased by more than $20 billion.
B increased by less than $20 billion.
C reduced by less than $20 billion.
D reduced by more than $20 billion.

3. O/N 13/P32/Q20, O/N 12/P32/Q30

In an economy, the marginal propensity to consume of the unemployed is higher than that of taxpayers.
The government increases expenditure on unemployment benefits by $10 m and increases taxation by $10 million.
What will be the impact on aggregate demand?

A It will be unchanged.
B It will increase by less than $10 million.
C It will increase by $10 million.
D It will decrease by $10 million.

4. M/J 04/P3/Q19

In an economy, the marginal propensity to consume of the unemployed is higher than that of taxpayers.
The government increases both expenditure on unemployment benefits and taxation by $10 million.
What will be the impact on aggregate demand?

A It will be unchanged.
B It will increase by less than $10 million.
C It will increase by $10 million.
D It will decrease by $10 million.

5. M/J 96/P3

In an economy, the marginal propensity to consume of the unemployed is higher than that of taxpayers.
If government expenditure on unemployment benefits is increased by £x million then, in order to maintain national income at its initial equilibrium level, taxation must be

A increased by £x million
B increased by more than £x million
C reduced by £x million
D reduced by less than £x million

6. M/J 93/P3

In an economy in which there is full employment, the marginal propensity to consume of pensioners is greater than that of taxpayers. Government expenditure on pensions increases by £x million.
To avoid an inflationary gap, taxation must be

A increased by more than £x million
B increased by £x million
C increases by less than £x million
D reduced by £x million

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7. O/N 90/P3

Which of the following statements best explains why an increase of $1 million in government expenditure on goods and services might raise national income by a larger amount than a tax cut of $1 million?

A the tax cut increases the rate of interest.

B a large proportion of the government expenditure is spend on imports

C the multiplier applies only to the extra amount saved from the tax cut

D the multiplier applies to the whole of the increase in government expenditure

8. M/J 90,O/N 98/P3/Q22

In a Keynesian model, why would a £100 million increase in government expenditure on goods and services have a greater impact on aggregate monetary demand than a £ 100 million reduction in tax revenue?

A consumers spend only part of any extra disposable income.

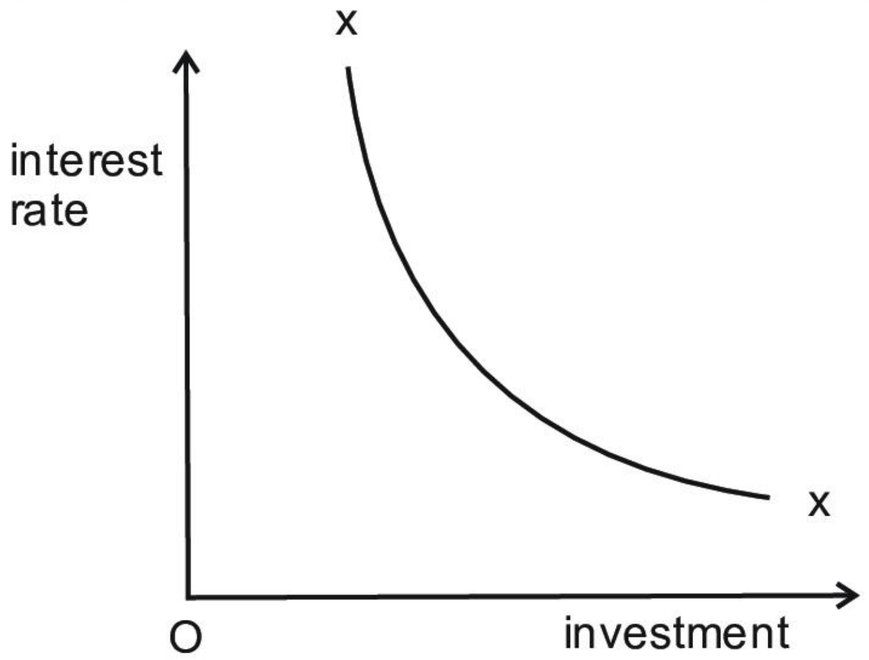
B the multiplier does not apply to consumer expenditure

C the marginal tax rate affects the value of the multiplier

D government expenditure implies deficit financing

9. M/J 97/P3, M/J 93

Curve XX indicates the relationship between interest rates and the level of investment in an economy.



What does this curve represent?

A the accelerator function.

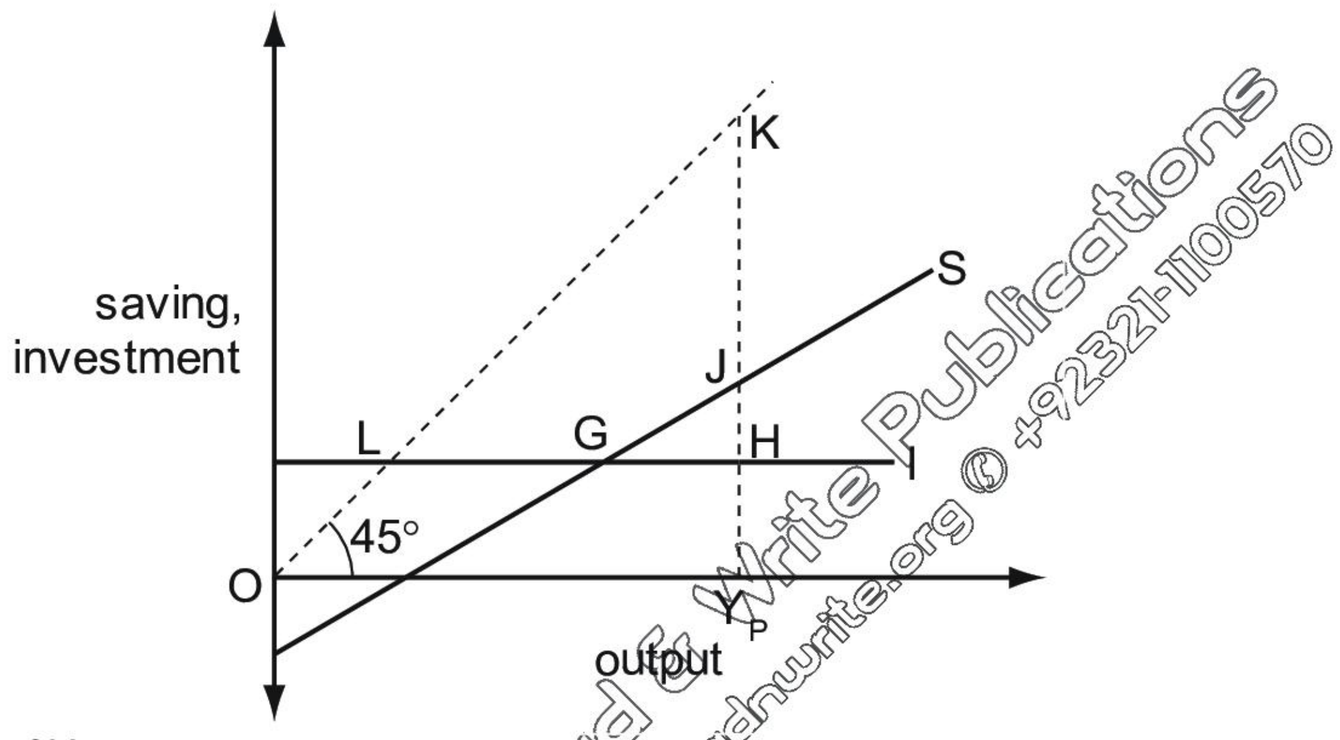
B the level of liquidity preference.

C the marginal efficiency of investment.

D the supply curve of capital goods.

10. O/N 17/P31/Q20, O/N 12/P31/Q19

The diagram shows the saving and investment curves of a closed economy with no government.



The potential level of output is OY_P.

Which distance measures the gap between actual and potential output?

A KJ **B** JH **C** LG **D** GH

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Answers Section

1. B

△Y↑→Accelerator →△I↑→Multiplier→△Y↑

2. D

In order to keep aggregate demand and employment unchanged the government will have to increase taxation by more than $20 billion since the rich tend to spend a lower proportion of their income. For example if unemployed are given $10 , they may increase consumption by $9 million but when the rich are taxed $10 they may reduce consumption by $6 because they have a smaller MPC. So in order to make sure there is no net effect, the government will have to increase taxation by more than $10 billion.

3. B

In this case an increase in benefits by $10 million will result in the poor spending nearly all of it in order to fulfill basic necessities. But the $10 million raised through higher taxation will be from people who spent less per dollar earned. So by redistributing income to those who would spend more, aggregate demand would rise. So options A and D are incorrect. In the end since the poor do not spend all of the extra income and nor do the middle class or rich save all of their income, the rise in AD will be less than $10 million.

4. B

Given:

MPC (unemployed) > MPC (tax payers)

When govt. increases expenditure on unemployed by $10 million, unemployed will consume the spending and hence it will generate the multiplier effect. This will lead to increase in national income. In order to maintain the national income on its original level the government needs to tax the taxpayers so that they reduce their consumption. The MPC of taxpayers is lower, so if tax is increased by $10 million, taxpayers will reduce their consumption in lower proportion when compared with increase ion govt. spending on unemployed. In order to cancel the multiplier effect, the tax should be increased by more than £x million so that increase in consumption of unemployed meets reduction in consumption of taxpayers.

5. B

Given.

MPC (unemployed) > MPC (tax payers)

When government increases expenditure on unemployed by £x million, unemployed will consume the spending and hence it will generate the multiplier effect. This will lead to increase in national income. In order to maintain the national income on its original level the government needs to tax the taxpayers so that they reduce their consumption. The MPC of taxpayers is lower, so if tax is increased by £x million, taxpayers will reduce their consumption in lower proportion when compared with increase in govt. spending on unemployed. In order to cancel the multiplier effect, the tax should be increased by more than £x million so that increase in consumption of unemployed meets reduction in consumption of taxpayers.

6. A

Given.

MPC (pensioners) > MPC (tax payers)

When government increases expenditure on pensioners by £x million, pensioners will consume the spending and hence it will generate the multiplier effect. This will lead to increase in national income. In order to maintain the national income on its original level the government needs to tax the taxpayers so that they reduce their consumption. The MPC of taxpayers is lower, so if tax is increased by £x million, taxpayers will reduce their consumption in lower proportion when compared with increase ion govt.. spending on pensioners. In order to cancel the multiplier effect, the tax should be increased by more than £x million so that increase in consumption of pensioners meets reduction in consumption of taxpayers.

7. D

Increase in $1m govt. expenditure will increase the national income by multiple times. The multiplier effect will be applied to whole of $1m inject. However a reduction of same amount in taxation will have a lesser, multiplier effect. Reduction in tax will increase the disposable income. However not all of the disposable income would be spent in the economy. Only a part of extra disposable income would be spent whereas on the other side all of the injection of govt.. expenditure would be spent. Hence the multiplier effect for tax reduction would be small than that of government spending.

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8. A
Increase in £100m government expenditure will increase the national income by multiple times. The multiplier effect will be applied to whole of £100m inject. However a reduction of same amount in taxation will have a lesser, multiplier effect. Reduction in tax will increase the disposable income. However not all of the disposable income would be spent in the economy. Only a part of extra disposable income would be spent whereas on the other side all of the injection of govt.. expenditure would be spent. Hence the multiplier effect for tax reduction would be small than that of government spending.

9. C
The diagram shows relationship between interest rate and investment and it is known as marginal efficiency of investment (MEI).

10. D
National income equilibrium will be established where W=J at point G where as full employment will be achieved at Y_p or H. Hence the gap between actual and potential will be GH.

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Unit 16 Money, banking & interest rate determination

16.1 Banking

1. M/J 96/P3
Which of the following assets of the commercial banks is the most profitable?

A Balances at the central bank. **C** Loans and advances.
B Eligible commercial bills. **D** Treasury Bills.

2. M/J 97/P3/Q26, M/J 88
Which of the following is a liability of a commercial bank?

A Banker's deposits **B** Deposits **C** Money at call **D** Overdrafts

3. M/J 00/P3/Q27
Bank X makes a loan to a customer to buy a car from a friend who pays the cheque into Bank Y. What will be the impact on Bank Y's cash reserves and deposits once the cheque has been cleared?

	Cash reserves	Deposits
A	Increase	Increase
B	Increase	Unchanged
C	Unchanged	Increase
D	Unchanged	Unchanged

Answers Section

1. C
Loans and advances are the most profitable assets of the bank as they have to be returned by the bank's debtors at an interest rate.

2. B
Deposits are the savings of customers of bank. These savings have to be returned by the bank to their customers on their demand. Hence, customers become creditors in this case and deposit accounts become liability.

3. A
The money for bank X will be asset while the same money for Bank Y will be deposit which is liability. When cheque is cleared, cash reserves of bank 'Y' will increase. Hence A is the answer.

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16.2 Credit creation

1. **M/J 15/P33/Q21, M/J 12/P32/Q24**
In a banking system all banks maintain 10 % of deposits as cash.
Customers withdraw $20 000 in cash.
Assuming no subsequent net change in notes and coins in circulation, by how much will the banks have to reduce their net loans?
A $2000 **B** $18 000 **C** $180 000 **D** $220 000

2. **M/J 14/P32/Q17**
A closed economy has a banking system consisting of a single bank. The bank operates with a cash ratio of 10%. Customers deposit $20 000 in cash.
Assuming subsequent net withdrawals of cash from the banking system are zero, what is the maximum amount of loans that the bank can create?
A $2000 **B** $18 000 **C** $180 000 **D** $200 000

3. **O/N 13/P33/Q20, M/J 93/P3**
In a banking system, all banks maintain 20% of deposits as cash.
One bank receives a new cash deposit of $200. Subsequent net withdrawals of cash from the banking system are zero.
What will be the total increase in deposits within the system?
A $20 **B** $200 **C** $800 **D** $1000

4. **M/J 08/P3/Q23, O/N 13/P31/Q20**
In a banking system, all banks maintain 20% of deposits as cash.
One bank receives a new cash deposit of $200. Subsequent net withdrawals of cash from the banking system are zero.
What will be the resulting increase in bank loans and the total increase in bank deposits?

	increase in bank loans	total
A	$160	$200
B	$160	$360
C	$800	$1000
D	$1000	$1000

5. **M/J 99/P3**
In a banking system, all banks maintain 10% of deposits as cash.
One bank receives a new deposit of £200. Subsequent net withdrawals of cash from the banking system are zero.
What will be the final increase in deposits within the system?
A £20 **B** £180 **C** £200 **D** £2000

6. **O/N 95,M/J 00/P3**
In a multi-bank banking system, all banks maintain a ratio of cash to deposits of 10%. One bank receives a new cash deposit of £500.
If the amount of cash subsequently held by the public remains unchanged, what will be the final increase in bank deposits?
A £50 **B** £500 **C** £550 **D** £5000

7. **O/N 89M/J 04/P3/Q24**
A closed economy has a banking system consisting of a single bank. The bank operates with a cash ratio of 10%.
Customers deposit $10 000 in cash.
Assuming no subsequent change in notes and coins in circulation what is the maximum amount of loans that the bank can create?
A $1000 **B** $9000 **C** $90 000 **D** $100 000

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8. O/N 93/P3
Which of the following, other things remaining unchanged, would increase the value of the credit multiplier?

A A reduction in tax rates
B A reduction in the cash reserve ratio of the commercial banks
C An open market purchase of securities by the central bank
D An increase in the public's ratio of cash to deposits

9. M/J 17/P33/Q22, O/N 86,O/N 01/P3
How do commercial banks create money?

A by cashing cheques for their customers
B by increasing their reserves at the central bank
C by making loans to customers
D by charging customers for banking services

10. M/J 83,M/J 92/P3/Q30
In which of the following ways can the commercial banks create money?

A Selling securities to the general public
B Selling Treasury bills to the central bank
C Accepting deposits of currency from the general public
D Making advances to private customers

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Answers Section

1. C

Cash reserve ratio = Liquidity ratio = LR = 10% Customer withdrawl = $20 000

Credit Multiplier $= \frac{1}{LR} = \frac{1}{10\%} = \frac{1}{0.1} = 10$

Total Deposit Reduction = 10 × 20 000 = $200 000

Net reduction in loans = 200 000 - 20 000 = $180 000

2. C

Cash reserve ratio = Liquidity ratio = LR = 10% Customer Deposits = $20 000

Credit Multiplier $= \frac{1}{LR} = \frac{1}{10\%} = \frac{1}{0.1} = 10$

Total Deposit Increase = 10 × 20 000 = $200 000

Net increase in loans = 200 000 - 20 000 = $180 000

3. D

Cash reserve ratio = Liquidity ratio = LR = 20% Initial Deposit = $200

Credit Multiplier $= \frac{1}{LR} = \frac{1}{20\%} = \frac{1}{0.2} = 5$ Total Deposit = 5 × 200 = $1000

4. C

Cash reserve ratio = Liquidity ratio = LR = 20% Initial Deposit = $ 200

Credit Multiplier $= \frac{1}{LR} = \frac{1}{20\%} = \frac{1}{0.2} = 5$ Total Deposit = 5 × 200 = $1000

Loan created = Total deposit - initial deposit = 1000 - 200 = $800

5. D

Cash reserve ratio = Liquidity ratio = LR = 10% Initial Deposit = £ 200

Credit Multiplier $= \frac{1}{LR} = \frac{1}{10\%} = \frac{1}{0.1} = 10$ Total Deposit = 10 × 200 = £ 2000

6. D

Cash reserve ratio = Liquidity ratio = LR = 10% Initial Deposit = £ 500

Credit Multiplier $= \frac{1}{LR} = \frac{1}{10\%} = \frac{1}{0.1} = 10$ Total Deposit = 10 × 500 = £ 5000

7. C

Cash reserve ratio = Liquidity ratio = LR = 10% Initial Deposit = $ 10,000

Credit Multiplier $= \frac{1}{LR} = \frac{1}{10\%} = \frac{1}{0.1} = 10$

Total Deposit = 10 × 10000 = $ 100,000 Loans created =100,000 - 10,000 = 90,000

8. B

Liquidity ratio = LR = Cash reserve ratio

Credit Multiplier $= \frac{1}{LR}$

Therefore when cash reserve ratio decreases, credit multiplier increases and vice versa.

9. C

Banks accept deposits and then make loans. These loans become deposits of another bank, which then again makes loans that deposit of another bank, which then again makes loans to others. This series continues and leads to credit and money creation.

10. D

Banks accept deposits and then make loans. These loans become deposits of another bank, which then again makes loans that deposit of another bank, which then again makes loans to others. This series continues and leads to credit and money creation.

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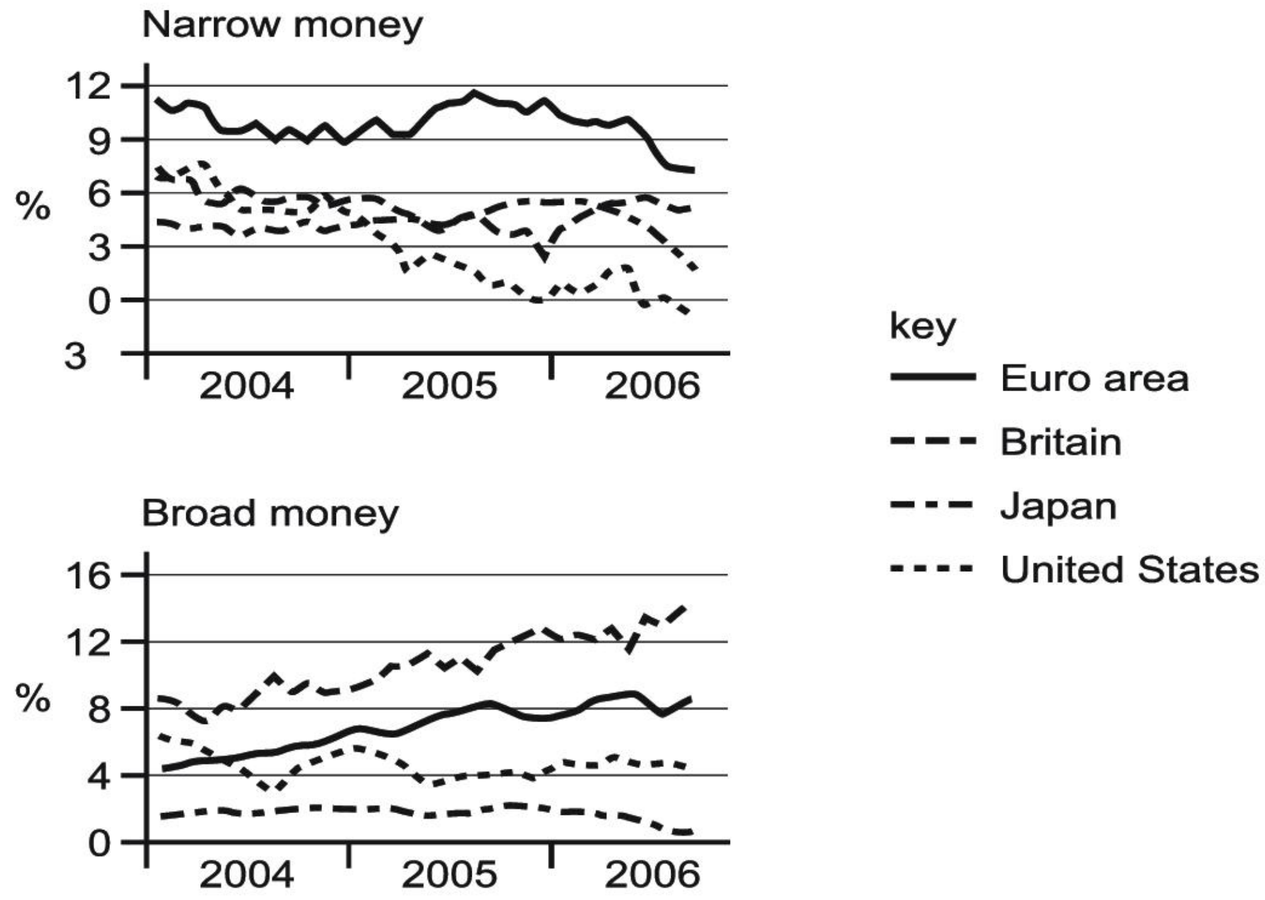
16.3 Money supply

1. **O/N 12/P31/Q17**
Which asset would **not** be included in a country's broad money supply ?
A deposits in commercial banks held for specified minimum periods of time
B deposits in commercial banks transferable by cheque
C deposits in the central bank held by commercial banks
D notes and coins held by private individuals

2. **M/J 10/P32/Q15**
The diagram shows changes in broad and narrow measures of money supply between 2004 and 2006.



Which is the only area to have experienced a contraction in either of its measures of money supply?
A Euro area **B** Britain **C** Japan **D** United States

3. **M/J 98/P3, O/N 90/P3**
What does the monetary base in an economy consist of?
A notes and coins held by the banking system.
B notes and coins in private circulations in only.
C notes and coins in private circulation plus public deposits.
D notes and coins in private circulation plus the cash reserves of the banking system.

4. **M/J 90/P3/Q37**
The following table lists different monetary assets in the UK.

1	Notes and coin in circulation outside the banks
2	Notes and coin held in tills by the banks
3	Commercial banks' operational balances at the Bank of England
4	Current accounts (sight deposits) in banks
5	Deposit accounts (time deposits) in banks

Which of the items make up the M_0 definitions of the money supply?
A 1 only **B** 1+2+3 **C** 1+2+4 **D** 1+3+4

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5. M/J 15/P32/Q18

Other things being equal, the money supply in an open economy will increase if

A domestic banks increase their lending to foreign borrowers.

B the central bank buys foreign currency in the foreign exchange market.

C the government sells bonds to domestic residents.

D there is an increase in the volume of imports to the economy.

6. M/J 01/P3, M/J 95, M/J 84

Which method of financing government expenditure on higher education is most likely to result in an increase in the money supply?

A selling government bonds to non-bank general public.

B selling government bonds to the central bank.

C raising the rate of income tax.

D charging all students the full cost of tuition fees.

7. O/N 14/P31/Q18

A central bank purchases government securities as part of a policy of quantitative easing. What is likely to be the effect on interest rates and the supply of money?

	price	output
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

8. M/J 13/P32/Q18

A country's central bank engages in a policy of quantitative easing (open market purchase of securities). How is this policy meant to affect the quantity of narrow money and the quantity of broad money?

	effect on narrow money	effect on broad money
A	increase	increase
B	increase	decrease
C	decrease	increase
D	decrease	decrease

9. O/N 11/P32/Q17, O/N 14/P33/Q18

Despite a government budget deficit, a country's money supply remains unchanged.
What could explain this?

A The country has a balance of payments surplus equal to the government budget deficit.

B The country's foreign exchange rate is fixed.

C The government budget deficit is financed by borrowing from the central bank.

D The government budget deficit is financed by selling government bonds to members of the public.

10. M/J 02/P3/Q18

In which circumstance will an increase in the public sector deficit **not** lead to an increase in the money supply, other things being equal?

A The deficit is financed by an increase in government borrowing from private individuals.

B The rate of interest is held constant.

C There is large-scale unemployment.

D Commercial bank lending to the private sector is held constant.

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11. M/J 96/P3/Q28

The central government in the UK runs a budget surplus of £10 billion.
What must the Bank of England do to prevent the cash reserves of the commercial banks from falling?

A Buy bonds of a value at least equal to £10 billion.
B Buy bonds of a value less than £10 billion
C Sell bonds of a value at least equal to £10 billion
D Sell bonds of a value less than £10 billion.

12. M/J 91/P3/Q38

The data in the table refers to a closed economy for a given period.

	$ million
Government budget surplus	11 000
Government purchases of bonds from the private sector (excluding banks)	9 000
Increase in bank lending to the private sector	12 000

What was the increase in a monetary aggregate comprising notes and coin held by the published banks deposits?

A $1 000 million. **B** $2 000 million. **C** $3 000 million. **D** $10 000 million.

13. O/N 94/P3/Q27, M/J 83

Which of the following is most likely to cause an expansion of the money supply?

A a budget deficit financed by borrowing from the central bank.
B an increase in the public demand for notes and coins.
C intervention by the government to support the external value of the currency.
D open-market sales of government securities by the central bank.

14. M/J 91/P3

Other things being equal, which of the following transactions will increase the cash reserves of UK commercial banks?

A A tax payment by a UK company
B The purchase of a national savings certificates by an individual
C The sale of government bonds to a member of the general public
D The redemption by the government of a Treasury bill held by a UK bank

15. O/N 91/P3

Which of the following, other things being equal, would result in a reduction in the volume of bank deposits?

A An increase in the public's desired ratio of cash to deposits
B An increase in government expenditure financed by borrowing from overseas
C An increase in government expenditure financed by borrowing from the central bank
D A reduction in the banks' cash reserve ratio

16. M/J 93/P3

The table shows three instruments of monetary policy?
Which combination of these instruments corresponds to a situation in which the government is using all three to restrain the economy?

	Interest rates	**Open market operations**	**Special deposits**
A	Increase	Sale	Increase
B	Increase	Sale	Decrease
C	Increase	Purchase	Increase
D	Decrease	Purchase	Increase

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17. M/J 99/P3/Q28

Other things being equal, what will cause a reduction in the stock of money?

A A balance of payments surplus

B An increase in the public's demand for bank advances

C An increase in the public's desired ratio of cash to bank deposits

D An increase in the public sector borrowing requirement

18. M/J 11/P32/Q18

What will expand the money supply in an open economy?

A a current account balance of payments deficit

B an increase in the cash reserve ratio of commercial banks

C government borrowing from domestic residents

D government intervention to prevent an appreciation in the foreign exchange value of domestic currency

19. M/J 13/P32/Q21

Other things remaining unchanged, what is likely to be a consequence of an increase in net cash withdrawals from the commercial banks?

A an inflationary spiral

B an increase in the cash reserves of the commercial banks

C an increase in the liquidity of the commercial banks

D a restriction in the ability of the commercial banks to lend

20. M/J 10/P32/Q2

An economy has underemployed resources.

Which method of financing an increase in government expenditure is likely to have the greatest expansionary effect?

A borrowing from the central bank

B borrowing from the non-bank private sector

C increased direct taxation

D increased indirect taxation

21. O/N 95/P3

In which combination of circumstances is an increase in government expenditure on goods and services likely to result in the largest increase in output?

	initial level of unemployment	means of financing additional expenditure
A	High	borrowing from the banking system
B	High	increase in tax rates
C	Low	increase in tax rates
D	Low	issue of bonds to non-bank private sector

22. M/J 95/P3

An economy with unemployed resources experiences an increase in government expenditure financed by borrowing from the non-bank private sector.

Which of the following would limit the resulting change in GDP?

A interest rates rise.

B The government allows the money supply expend.

C The level of autonomous private investment is increased.

D The marginal propensity to save is reduced.

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Answers Section

1. C
Non-discretionary deposits held by commercial banks with central bank are not available for spending and therefore are included in monetary base but not included in broad money supply. Hence C is correct answer.

2. D
Money supply will contract only if percentage change is negative. Only USA experienced negative rate in 2006.

3. D
M_0, also known as narrow Money or monetary base, consists of notes and coins in circulation and bankers operational deposits with central bank.

4. B
By definition,
M_0 = Notes and coin in circulation outside the banks + Notes and coin held in tills by the banks+Commercial banks' operational balances at the Bank of England
So according to options, B is the right answer.

5. B
Financing government expenditure from central bank or from treasury bills will raise the money supply in the economy. Financing government expenditure from taxation or commercial banks through the sale of bonds and securities will decrease money supply. However, financing government spending from general public through bonds and securities or privatization will keep the money supply unchanged.
Money supply may also increase if government sells foreign reserves in foreign exchange market or balance of payment moves into surplus.

6. B
Financing government expenditure from central bank or from treasury bills will raise the money supply in the economy. Financing government expenditure from taxation or commercial banks through the sale of bonds and securities will decrease money supply. However, financing government spending from general public through bonds and securities or privatization will keep the money supply unchanged.
Money supply may also increase if government sells foreign reserves in foreign exchange market or balance of payment moves into surplus.

7. B
Financing government expenditure from central bank or from treasury bills will raise the money supply in the economy. Financing government expenditure from taxation or commercial banks through the sale of bonds and securities will decrease money supply. However, financing government spending from general public through bonds and securities or privatization will keep the money supply unchanged.
Money supply may also increase if government sells foreign reserves in foreign exchange market or balance of payment moves into surplus.

8. A
When bonds are redeemed (purchased), cash will be injected into the economy, causing an increase in M_0 (narrow money). Since this will cause there to be more cash in the reserves of commercial banks, there will be an increase in credit creation, which will further lead to an increase in M_4 (broad money).

9. D
A balance of payments surplus means a net inflow of money into the economy, a government budget deficit also means that the government is spending more than it earn thus increasing money supply. So both actions increase money supply. The fixed foreign exchange rate doesn't explain why moneys supply remains unchanged. If the central bank buys government debt or finances it that means that the extra money the government spends remains the economy, thus this should lead to an increase in the money supply. Government budget deficit increases money supply whereas selling bonds to the public means the public gives away money in exchange for government bonds. So the net effect it no change in money supply.

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10. A

Financing government expenditure from central bank or from treasury bills will raise the money supply in the economy. Financing government expenditure from taxation or commercial banks through the sale of bonds and securities will decrease money supply. However, financing government spending from general public through bonds and securities or privatization will keep the money supply unchanged.
Money supply may also increase if government sells foreign reserves in foreign exchange market or balance of payment moves into surplus.

11. A

Budget surplus means more money is withdrawn from economy in the form of taxes than what is injected back in the form of government spending, hence there will be a net decrease in money supply. In order to prevent money supply from falling, Bank of England will buy bonds of at-least £10 billion which will in turn increases money supply to neutralize the effect of budget surplus on money supply.

12. D

A government budget surplus indicates that tax receipts were greater than government spending. This shows money was taken out of the economy and the money supply decreased.
Purchased bonds from private sector will inject money in the economy. Bank lending to private sector will inject money supply in the economy.
So the net effect will be:
rMs = Bank lending to private sector + government purchased bonds – government budget surplus.
=$ 12000m + $9000m - $11000m = $ 10,000m

13. A

Public demand for notes will not influence money supply as it is independently determined by central bank. Intervention by government to support external value of the currency may increase or decrease the money supply and we cant be certain unless specified. Open market sale of govenment securities will drain cash and therefore reduce money supply from the economy. However, budget deficit financed by borrowing from Central bank will raise the money supply and therefore is the correct answer.

14. D

When bonds will be redeemed by the central bank, this will inject the money supply into commercial banks and lead to credit creation in the economy. Hence cash reserves of UK commercial banks will increase.

15. A

If the public desires to hold a greater amount of cash, then this will reduce their need for bank deposits.

16. A

In contractionary monetary policy, money supply is decreased to increase interest rate. This is done by redeeming bonds and releasing special bonds.

17. C

If public desires to hold greater cash, then this will reduce the stock of money.

18. D

According to option D, appreciation of domestic currency in the Forex market will increase the price of exports and make imports cheaper. Hence exports will decrease and imports will become expensive which will lead to outflow of money supply prevention of appreciation will therefore increase money supply.

19. D

Money kept by consumers in banks is normally already part of money in circulations, so an increase in net cash withdrawals will not cause inflation. If customers withdraw more, banks have less cash reserves and thus, less liquidity, so option B and C are wrong. With less cash available, banks will be able to lend less cash so option D is correct.

20. A

Financing government expenditure from central bank or from treasury bills will raise the money supply in the economy. Financing government expenditure from taxation or commercial banks through the sale of bonds and securities will decrease money supply. However, financing government spending from general public through bonds and securities or privatization will keep the money supply unchanged.
Money supply may also increase if government sells foreign reserves in foreign exchange market or balance of payment moves into surplus.

21. A

Multiplier will be stronger if initial level of unemployment is high (high MPC) hence only option A or B are possible. To increase in output increasing tax is less likely the right option, hence A is correct answer.

22. A

If increase in government expenditure financed by borrowing from the non-bank private sector, it will raise interest rate.

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16.4 Liquidity preference

1. **O/N 14/P33/Q22, M/J 12/P31/Q23**
According to Keynesian theory, in which circumstance will there always be an increase in the demand for money?

	real income	price level	interest rates
A	constant	decrease	increase
B	constant	increase	decrease
C	increase	decrease	decrease
D	increase	increase	increase

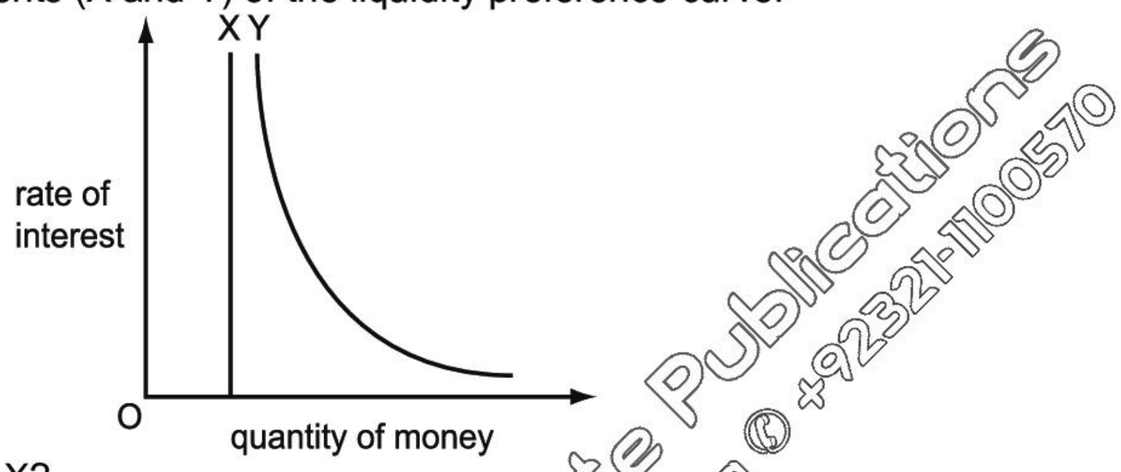
2. **M/J 11/P32/Q19, M/J 90, O/N 85**
According to Keynesian theory, in which of the following circumstances would there always be an increase in the demand for money?

	Real income	Price level	Interest rates
A	Fall	Constant	Fall
B	Constant	Fall	Increase
C	Constant	Increase	Fall
D	Increase	Constant	Increase

3. **O/N 17/P31/Q23, O/N 13/P31/Q22**
What will cause a fall in the quantity of money demanded?
A a rise in interest rates
B a rise in national income
C a rise in the price level
D a rise in wealth

4. **O/N 17/P33/Q27, M/J 13/P31/Q21**
What is meant by liquidity preference?
A a desire to be paid in cash rather than by cheque
B a desire to be paid monthly rather than weekly
C a desire to hold assets that are convertible into cash
D a desire to hold money rather than other assets

5. **O/N 07/P3/Q23**
The diagram shows the two main components (X and Y) of the liquidity preference curve.



What can be concluded about component X?
A It is an active balance and is interest-elastic.
B It is an active balance and is interest-inelastic.
C It is an idle balance and is interest-elastic.
D It is an idle balance and is interest-inelastic.

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6. O/N 16/P32/Q26, M/J 00, O/N 04/P3/Q25
What would cause an increase in the transactions demand for money?

A An increase in the rate of interest
B An increase in nominal national income
C A fall in the price of bonds
D An increase in unemployment

7. O/N 91/P3
If more workers were paid monthly by cheque, instead of weekly in cash, it could be expected that there would be an increase in the

A Share of cash in the money supply
B Transactions demand for money
C Commercial banks' minimum required cash reserve ratio
D Prices of government securities

8. M/J 84,M/J 06/P3/Q23
What is most likely to cause the public to hold less cash in relation to the level of money income?

A A fall in interest rates
B A fall in the level of output
C A greater availability of cash substitutes
D A rise in the general price level

9. M/J 95/P3
The Welsh Rugby Union finances the construction of a new stand by selling bonds at £500 each. Bond holders do not receive interest but have the right to purchase a stand ticket for international matches at the Welsh National Stadium. All else remaining unchanged, what would be likely to cause the subsequent market value of the bonds to increase?

A An increase in interest rates
B An increase in the price of stand tickets
C More international matches per season
D The building of another stand

10. M/J 16/P31/Q25
Which is most likely to cause a decrease in the public's ratio of cash to bank deposits?

A an increase in the number of cash dispenser machines (ATMs)
B a reduction in interest rates on bank deposits
C the closure of bank branches
D the introduction of annual charges for the use of credit cards

11. M/J 96/P3
What is likely to cause an increase in the public's desired ratio of cash to bank deposits?

A an extension of bank opening hours.
B an increase in the number of cash dispenser machines.
C an introduction of annual charges for the use of credit cards.
D the payments of interest on sight deposits.

12. O/N 95/P3
What will result from a rise in interest rates?

A A fall in the cost of issuing new shares
B A fall in the price of fixed-interest securities
C An increase in capital gains realized on the sale of securities
D A rise in the dividends on ordinary shares

13. O/N 95/P3
What result from a rise in interest rates?

A An increase in the desire to hold money
B An increase in the price of equities
C A decrease in the price of government bonds
D A reduction in the velocity of circulation of money

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14. O/N 97/P3/Q29

Which of the following is most likely to result in an increase in the public's ratio of cash to bank deposits?

A an extension of bank opening hours.
B an increase in the number of reported street crimes.
C the introduction of annual charges for the use of credit cards.
D the payment of interest on current account deposits.

15. M/J 13/P31/Q19

What will result from a rise in interest rates?

A a depreciation in the exchange rate
B a fall in the price of bonds
C an increase in capital spending
D an increase in the demand for money

16. O/N 06/P3/Q22

According to Keynesian theory, what would cause individuals to want to hold more idle money balances?

A an increase in bond prices
B an increase in the rate of interest
C an increase in the rate of inflation
D an increase in the level of output

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Answers Section

1. B
Transactions demand for money increases if there is an increase in income, interval between the income received or price level. Precautionary demand for money increases if there is an increase income or price level. Speculative demand for money increases if there is a decrease in interest rate.

2. C
An increase in the general price level will increase the transactions and precautionary demand for money. A decrease in interest rates will increase the price of bonds and speculation of decrease in price in future. People will hold more cash and this will increase the speculative (M_{sd}) demand for money. These two conditions will always increase the demand of money. Real income can either be constant, coupled with increase in inflation or heeds to increase. Hence, option C is answer.

3. A
Transactions demand for money decreases if there is an decrease in income, interval between the income received or price level. Precautionary demand for money decreases if there is an decrease income or price level. Speculative demand for money decreases if there is an increase in interest rate.

4. D
Liquidity preference is defined as a desire to hold liquid assets means which are easily convertible into cash without capital loss.

5. B
Interest inelastic means changes in the interest rate do not affect its demand. Only M_{td} and M_{pd} are interest inelastic and both are referred to as active balances. So,option B is the correct answer.

6. B
Transactions demand for money decreases if there is an decrease in income, interval between the income received or price level. Precautionary demand for money decreases if there is an decrease income or price level. Speculative demand for money decreases if there is an increase in interest rate.

7. B
As frequency with which money is received has decreased, this will lead to increase in transaction demand of money. More money will be required for a greater time period.

8. C
Holding of money in the form of cash or bank deposits does not relate to interest rates, level of outputs, or inflation. A greater availability of cash substitutes will urge the public to hold less cash and deposit more in banks.

9. B
As bond holders hold the right to purchase a stand ticket only (instead of getting interest), the price of stand tickets, is the market price of bonds. An increase in the price of stand tickets will increase the market value of bonds as bonds cannot perform any other function.

10. A
An increase in the number of cash dispenser machines (ATMs) will make access to cash easier for public and therefore they will need less to keep in cash with themselves, hence is most likely to cause a decrease in the public's ratio of cash to bank deposits.

11. C
An increase in the ratio of cash to bank deposits means people prefer to hold more cash. Introduction of annual charges in use of credit cards will attribute cost with the use of plastic money the so people will prefer to reduce their costs by holding more cash.

12. B
"Fixed-interest securities" are bonds. The price of bonds and the market rate of interest have a negative relation, which means that a rise in interest rates will cause a fall in the price of bonds.

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13. C
As

$$\text{Interest Rate} = \frac{\text{fixed amount of interest}}{\text{price of bonds}} \times 100$$

As amount of interest is fixed, therefore rise in interest rate will lead to a decrease in market price of bond.

14. C
An increase in the ratio of cash to bank deposits means people prefer to hold more cash. Introduction of annual charges in use of credit cards will attribute costs with the use of plastic money, so people will prefer to reduce their costs by holding more cash.

15. B
Interest rate and price of bonds are inversely related, hence price of bonds will fall with the increase in interest rate.

16. A
An increase in bond prices increases demand of bonds and hence increase money speculative demand.

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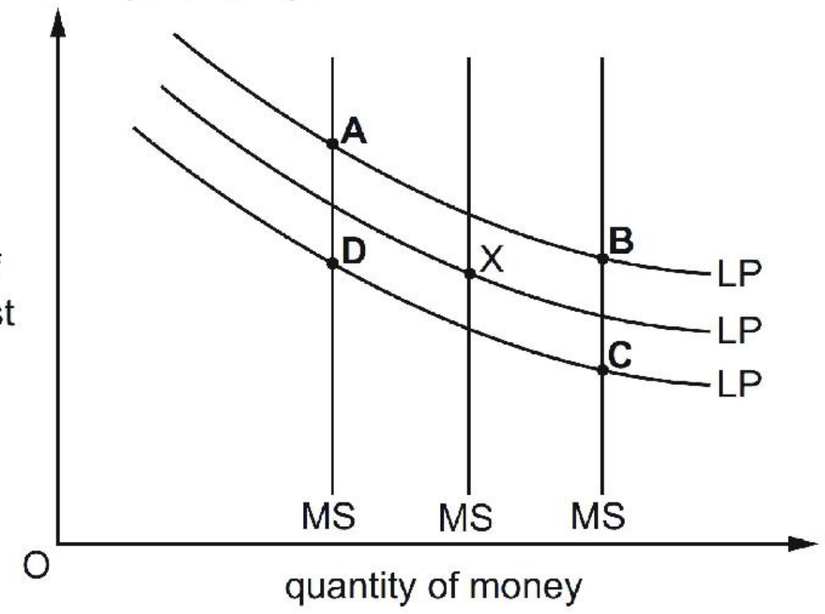
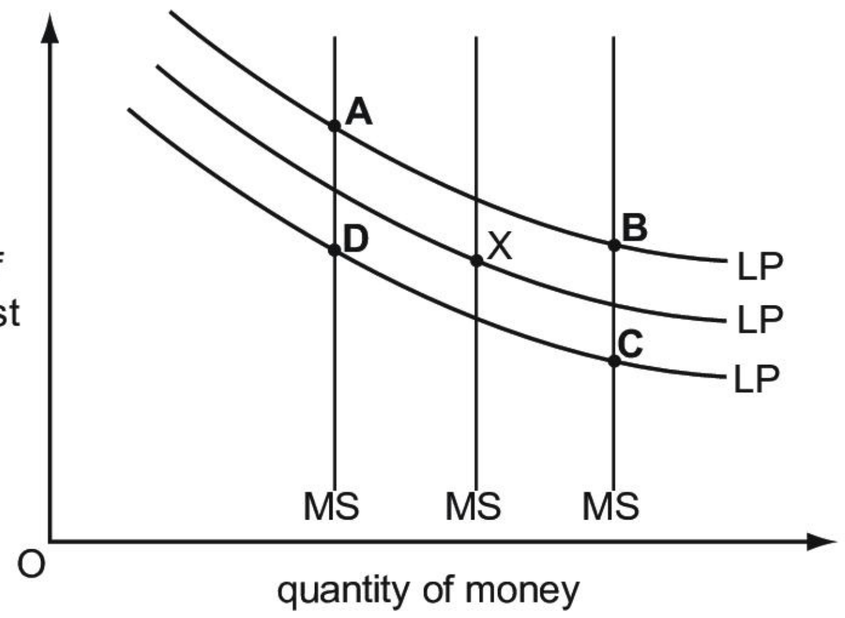
16.5 Changes in interest rate

1. **O/N 15/P31/Q21**
The diagram shows three different levels of money supply (MS) and three different demand curves for holding money balances (LP). The initial equilibrium is at point X.
There is a reduction in bank lending and people decide to hold more money as a precaution against emergencies.
What could be the new equilibrium point?



2. **O/N 12/P32/Q21, O/N 11/P31/Q19, O/N 11/P33/Q18, O/N 08/P3/Q20, O/N 03/P3/Q25, O/N 97, M/J 93**
The diagram shows three different levels of money supply (MS) and three different demand curves for holding money balances (LP). The initial equilibrium is at point X. Banks create more credit and people decide to hold more money as a precaution against emergencies.
What is the new equilibrium point?



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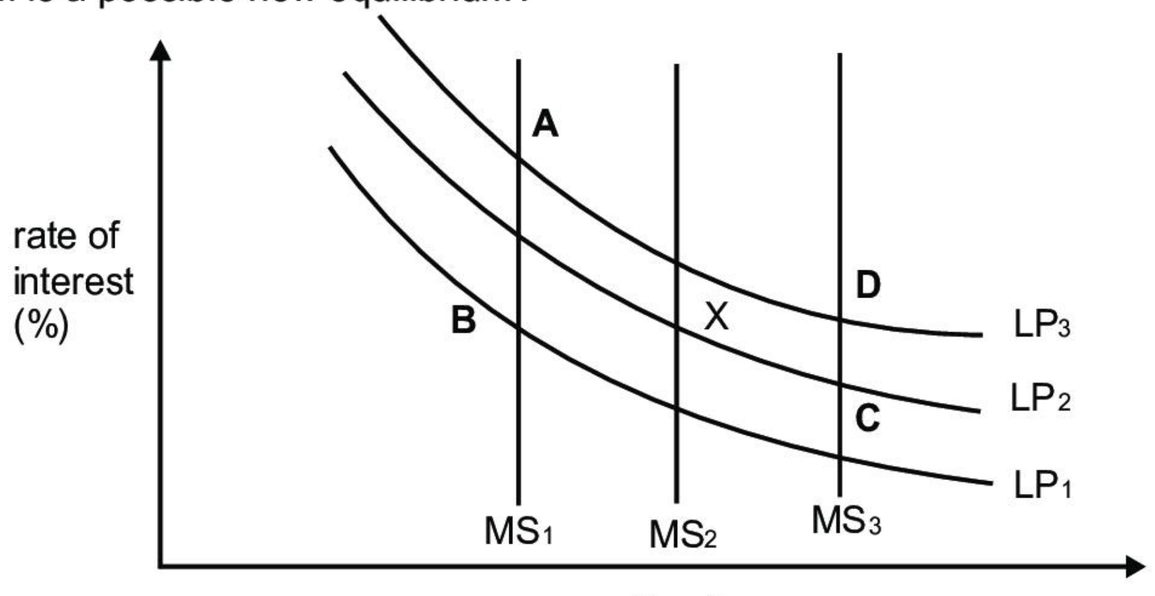
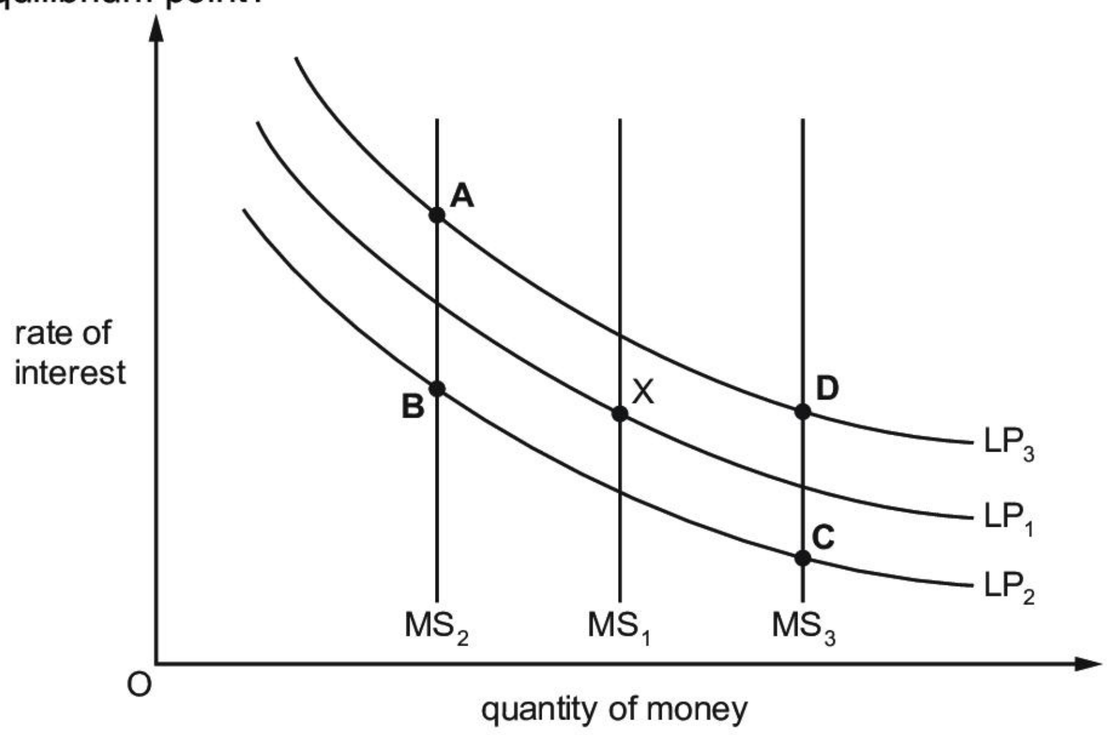
3. O/N 05,O/N 00/P3/Q29

The diagram shows three different levels of the supply of money (MS) and three different demand for money curves (LP).
The initial equilibrium is at point X.
There is an increase in the level of money income and at the same time there is a contraction in bank credit.
Which point in the diagram is a possible new equilibrium?



4. M/J 14/P31/Q24

The diagram shows three different levels of the supply of money (MS) and three liquidity preference demand for money curves (LP). The initial equilibrium is at point X. There is a decrease in the level of money income and at the same time there is an expansion in bank credit.
Which point could be the new equilibrium point?



5. O/N 15/P33/Q27

According to Keynesian theory, what will cause the rate of interest to rise?

A a decrease in liquidity preference
B a decrease in the level of national income
C a decrease in the rate of investment
D a decrease in the supply of money

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6. M/J 15/P33/Q23
What will be the likely effects on interest rates and bond prices of a decrease in the demand for money?

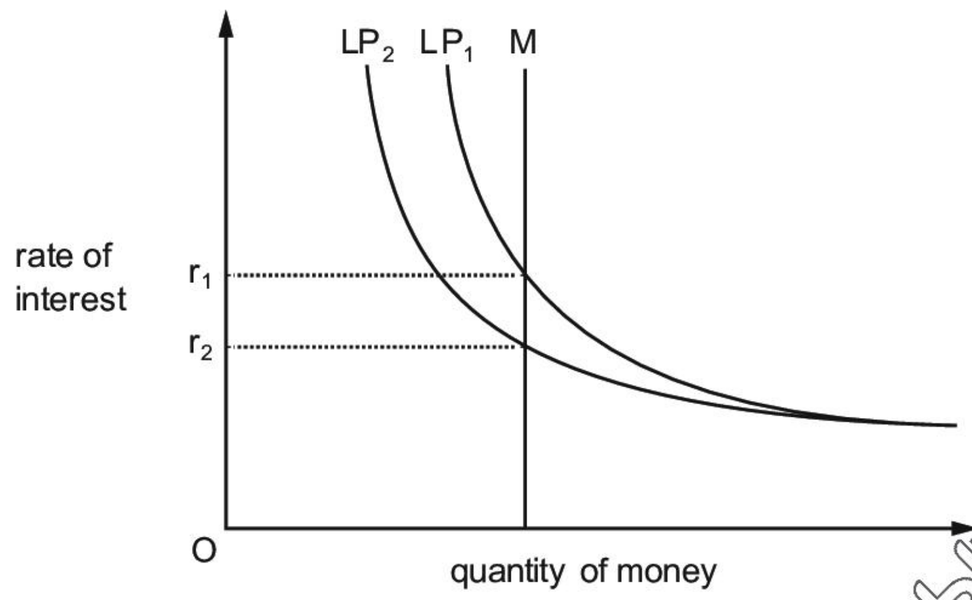
	interest rates	bond prices
A	fall	fall
B	fall	rise
C	rise	fall
D	rise	rise

7. O/N 11/P32/Q23, O/N 99/P3
What will be the likely effects on interest rates and bond prices of an increase in the demand for money?

	Interest rates	Bond prices
A	Fall	Fall
B	Fall	Rise
C	Rise	Fall
D	Rise	Rise

8. M/J 15/P33/Q22
If the money supply is fixed, an increase in economic activity
A increases the transactions demand for money.
B lowers the liquidity preference schedule.
C reduces interest rates.
D reduces the income velocity of circulation.

9. O/N 14/P34/Q23
The diagram shows two liquidity preference demand curves for money (LP). The money supply is M and the initial equilibrium rate of interest is r_1.



What could have caused the fall in the rate of interest from r_1 to r_2?
A an increase in output
B an increase in savings
C an increase in unemployment
D a rise in the price level

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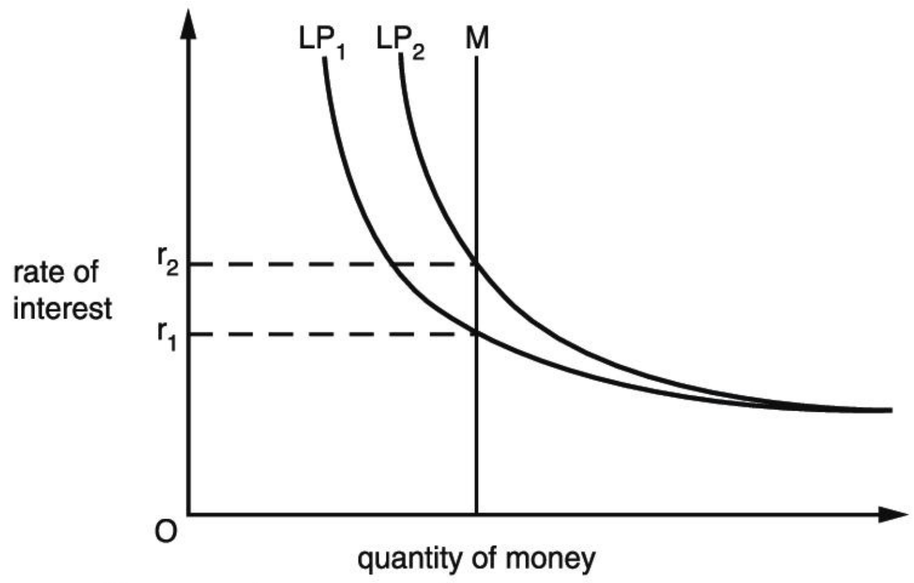
10. M/J 02/P3/Q24, M/J 15/P32/Q24

The diagram shows the determination of the rate of interest in the economy where M represents the money supply and LP represents liquidity preference.

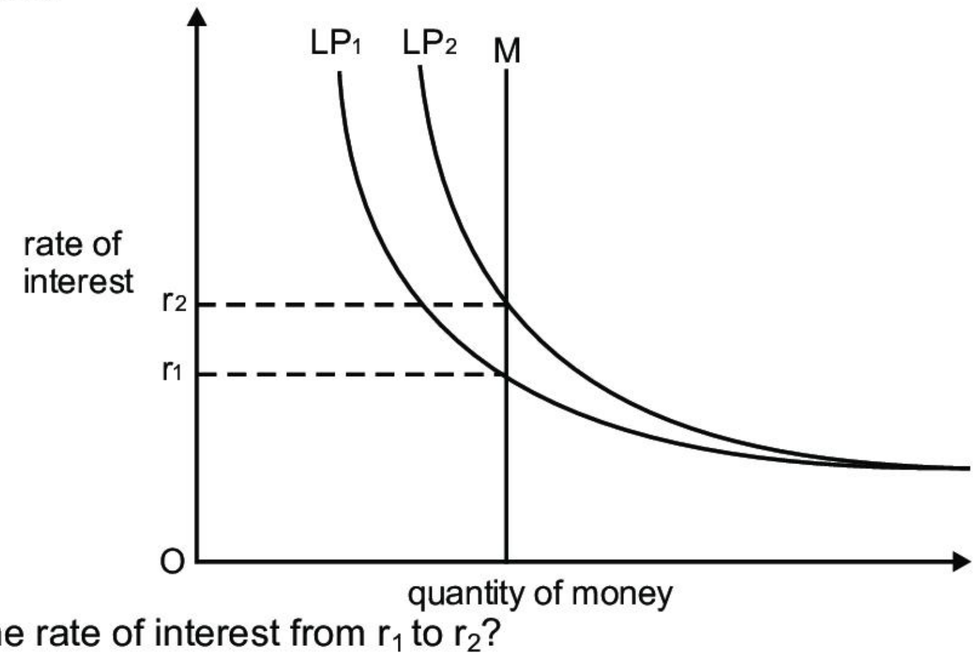


What could cause the rise in the rate of interest from r_1 to r_2?

A An increase in national income
B An increase in the money supply
C A reduction in investment expenditure
D A reduction in the loans made by the private sector

11. O/N 01/P3, M/J 92/P3

The diagram shows the determination of the rate of interest in the economy where M represents the money supply and LP represents liquidity preference.



What could cause the rise in the rate of interest from r_1 to r_2?

A A fall in exports with imports constant
B An increase in savings
C A rise in the price level
D An increase in unemployment

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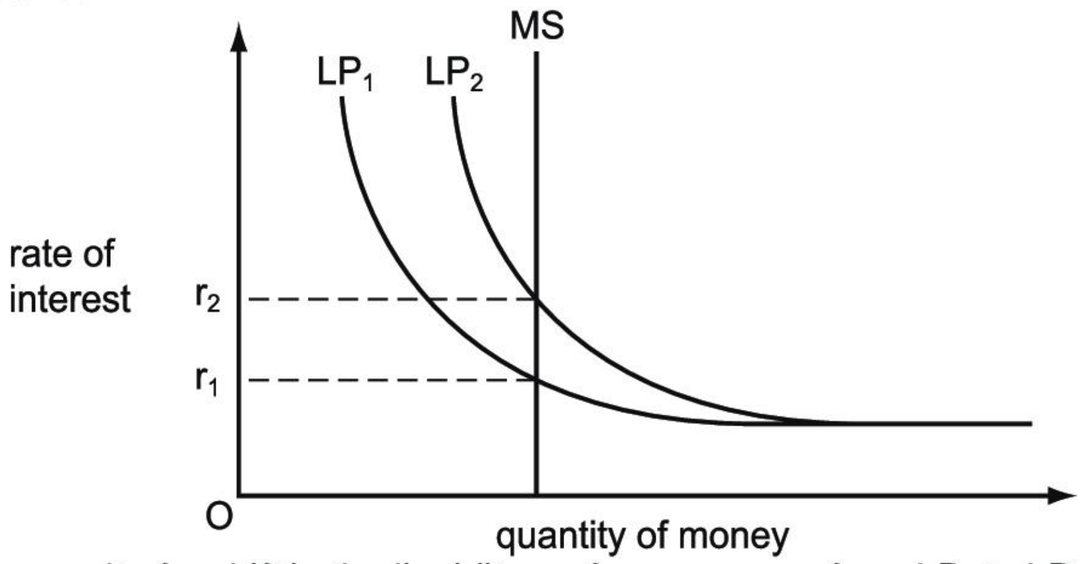
12. O/N 94,M/J 05/P3/Q5, M/J 13/P32/Q22

The diagram shows the determination of the rate of interest in an economy where MS represents the money supply and LP represents liquidity preference.



The rate of interest rises as a result of a shift in the liquidity preference curve from LP_1 to LP_2. Which policy might be used to try to maintain the rate at r_1?

A The purchase of bonds in the open market
B Reductions in income tax rates
C Increase in indirect taxes
D Increased government expenditure

13. O/N 14/P32/Q21

A central bank pursues a policy of quantitative easing by purchasing government securities. What is likely to happen to interest rates and aggregate expenditure?

	interest rates	aggregate expenditure
A	fall	fall
B	fall	rise
C	rise	fall
D	rise	rise

14. O/N 11/P32/Q22

According to Keynesian analysis, what will be the result of a decrease in the money supply?

A The rate of interest will be reduced, thereby reducing the levels of investment and income.
B The rate of interest will be increased, thereby reducing the levels of investment and income.
C The level of income will be increased as a result of a lower rate of interest and a higher level of investment.
D The price level will fall by the same percentage change as the decrease in the money supply.

15. M/J 98/P3/Q29

What does a fall in the market price of gilt-edged securities indicate?

A The budget deficit has decreased
B The external value of the currency has risen.
C The market rate of interest has risen.
D The speculative demand for money has increased

16. M/J 96/P3

According to Keynesian theory, what will cause the rate of interest to rise?

A a decrease in the rate of investment.
B an increase in liquidity preferences.
C an increase in the level of savings.
D an increase in the supply of money.

17. Dec. 82,O/N 91,M/J 97/P3/Q28

Which of the following, others being equal, will cause interest rates to rise?

A an increase in business optimism.
B a reduction in the demand for overdrafts by private companies.
C a reduction in the public sector borrowing requirement.
D the expectation of an increase in the prices of government securities.

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18. M/J 04/P3/Q21

What will cause interest rates to rise?

A an unexpected increase in the prices of bonds

B an increase in the nominal money supply

C an increase in the volume of output

D a reduction in the price level

19. O/N 96/P3/Q39

Which of the following would be most likely to induce a government to reduce interest rates?

A A forecast by the employers' organization of a recovery in the volume of private investment

B An increase in the general level of interest rates abroad

C A rapid depreciation in the foreign exchange value of the currency

D A rapid fall in the rate of inflation

20. M/J 99/P3/Q26

What will be the effect of a central banks' purchase of securities on the money supply and on the level of interest rates?

	Effect on money supply	Effect on interest rates
A	Increase	Increase
B	Increase	Reduction
C	Reduction	Increase
D	Reduction	Reduction

21. O/N 08/P3/Q19

What is likely to be the effect on interest rates and the supply of money of a sale of government securities to the public by a central bank?

	interest rates	money supply
A	increase	increase
B	increase	decrease
C	decrease	decrease
D	decrease	increase

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Answers Section

1. A
If banks create less credit, then money supply decreases so the money supply curve shifts to the left. People also decide to hold more money as a precaution so the liquidity preference curve also shifts to the right. Hence, A is the new equilibrium point.

2. B
If banks create more credit, then money supply increases so the money supply curve shifts to the right. People also decide to hold more money as a precaution so the liquidity preference curve also shifts to the right. Hence, B is the new equilibrium point.

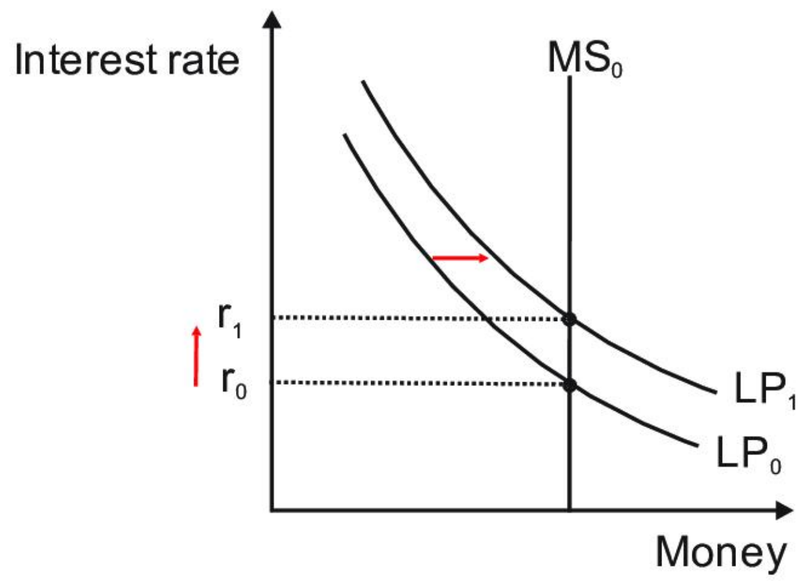
3. A
Increase in money income increases transactions and precautionary motive to rise. Hence, it will cause liquidity preference to rise. A contraction in bank credit will make money supply curve shift leftwards. So the new combination will cause equilibrium to be at point A.

4. C
Decrease in money decreases transactions and precautionary demand for money. Hence, it will cause liquidity preference to fall. A expansion in bank credit will make money supply curve shift rightwards. So the new combination will cause equilibrium to be at point C.

5. D

6. B
A fall in demand for money leads to fall in liquidity preference and interest rate. Bond prices have an inverse relationship with the interest rate, hence bonds prices rise.

7. C
An increase in the demand for money will increase interest rate as the figure shows.



Moreover, interest rates and bond prices are inversely related. So if interest rates go up bond prices should go down. So the correct direction of change is mentioned in option C.

8. A
An increase in economic activity increases the transactions and precautionary demand for money. Hence, A is the correct answer.

9. C
An increase in unemployment means fall in national income and therefore fall in transactions demand for money causing shift of liquidity preference from LP_1 to LP_2 and therefore a decrease in interest rate from r_1 to r_2 .

10. A
An increase in nominal national income will urge people to hold more money due to greater ability to spend and hence increases transactions demand for money. So, in turn, money transactions demand will cause LP curve to rise and increase interest rate.

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11. C

A rise in price levels will increase the transactions and precautionary demand of money and hence it will make LP curve shift from LP_1 to LP_2 and lead to rise in interest rate from r_1 and r_2.

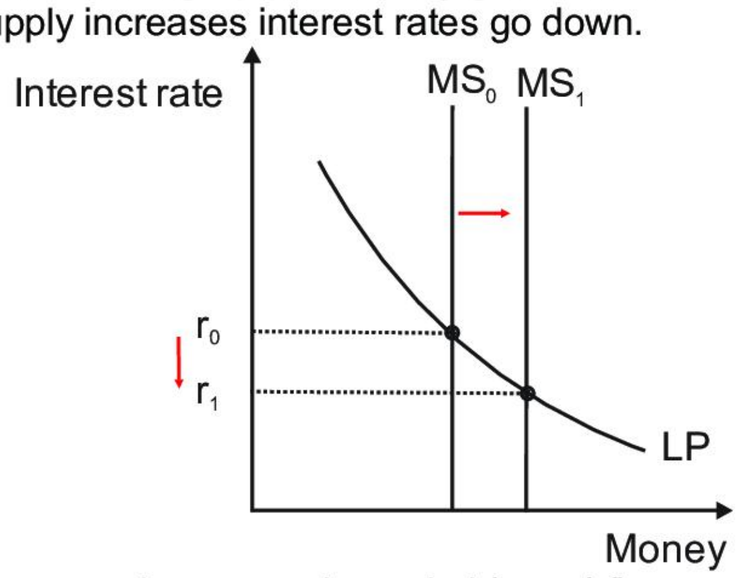
12. A

In order to reduce interest back to r_1, the authorities need to increase money supply which can be done by purchase of bonds in the open market. Hence options A is correct.

Reductions in income tax rates will increase the disposable income and thus increase liquidity preference, thus, further increasing interest rates. Increase in indirect taxes will raise the prices and therefore more cash holdings of public for transactions and precautionary motive leading to higher liquidity preference and interest rate eventually. Increased government expenditure will raise national income through multiplier and likely to increase transactions and precautionary motive of demand for money shifting liquidity preference and raises interest rate.

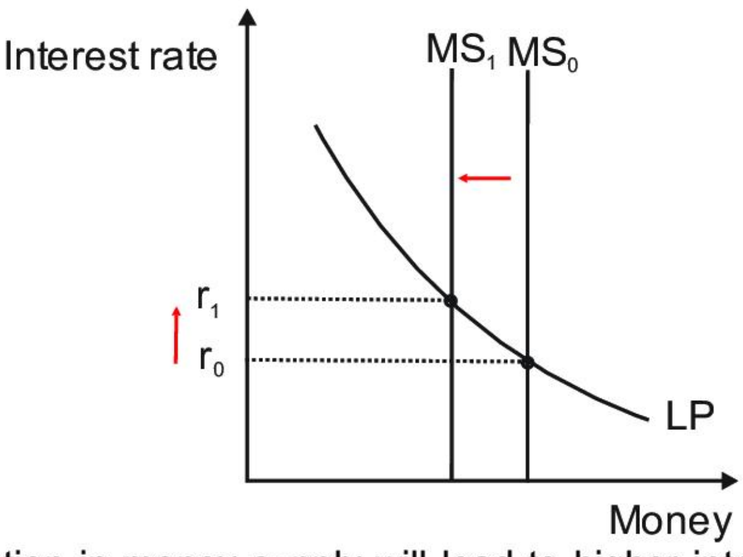
13. B

When a central bank pursues quantitative easing by purchasing government securities, it is buying bonds by pumping cash into the economy. So if money supply increases interest rates go down.



With lower interest rates borrowing becomes cheaper so households and firms spend more, leading to higher aggregate expenditure.

14. B



As the above diagram shows, a reduction in money supply will lead to higher interest rate. The higher interest rate will make borrowing more expensive so firms will reduce investment because more projects are infeasible for them. So option B is correct.

15. C

Decrease in market price of bonds will be the cause of a rise in market rate of interest.

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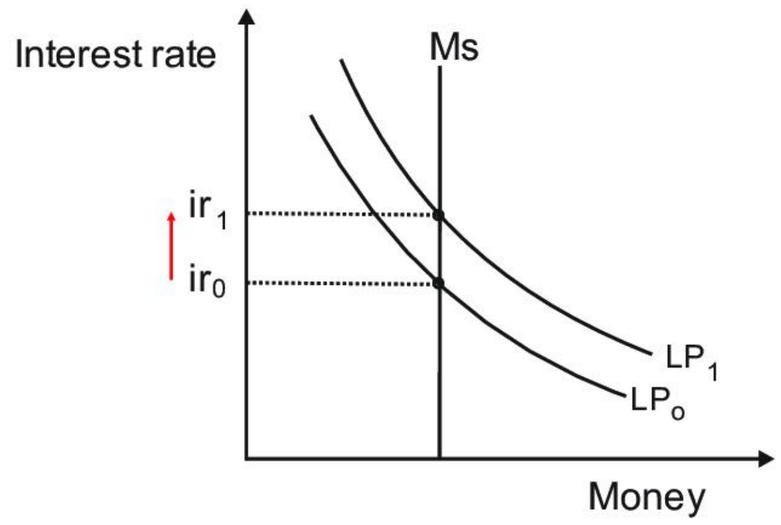
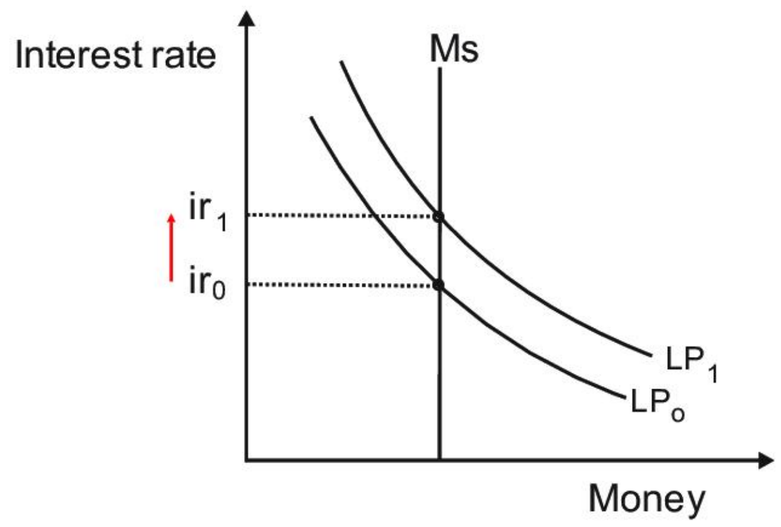
16. B

According to Keynesian Theory, increase in liquidity preference increases demand for money and causes interest rate to rise as shown below.



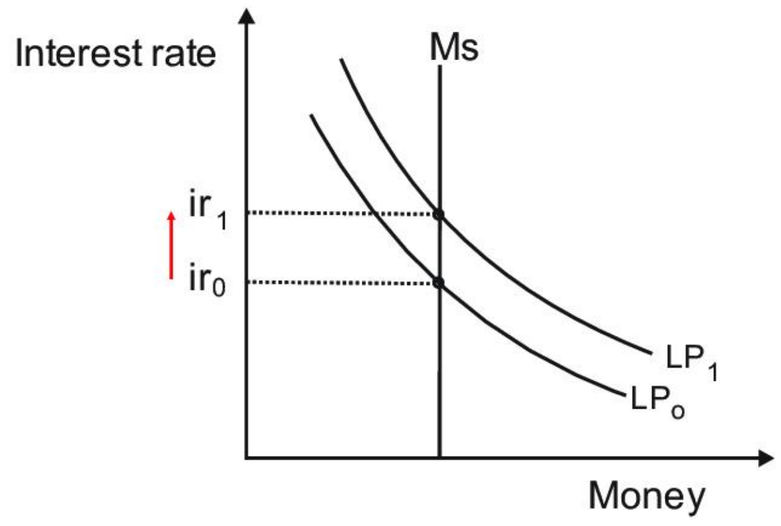
17. A

According to options, A is the answer. An increase in business optimism will increase investment opportunities. This will increase the Transitive Motive of Demand (M_{td}) for money. An increase in M_{td} will increase the overall liquidity preference of money. The new liquidity preference curve will cause rise in interest rates as shown in diagram below.



18. C

An increase in volume of output will increase the demand for money. So it will cause rise in interest rate as shown below.



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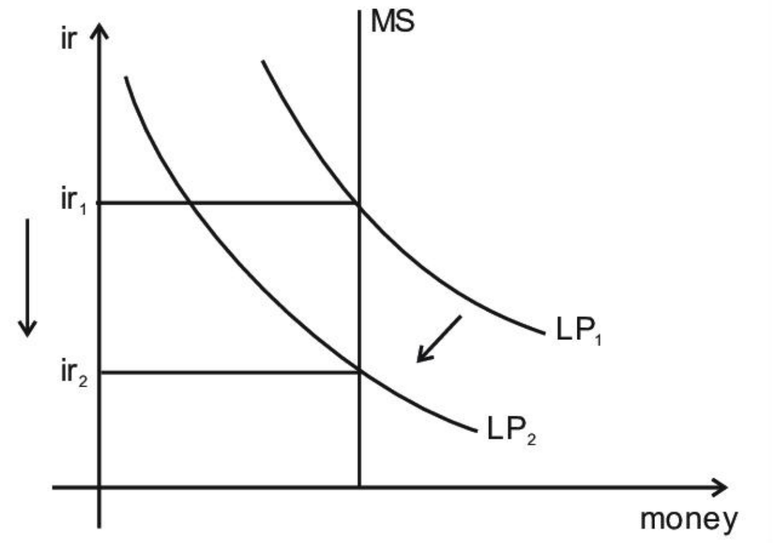
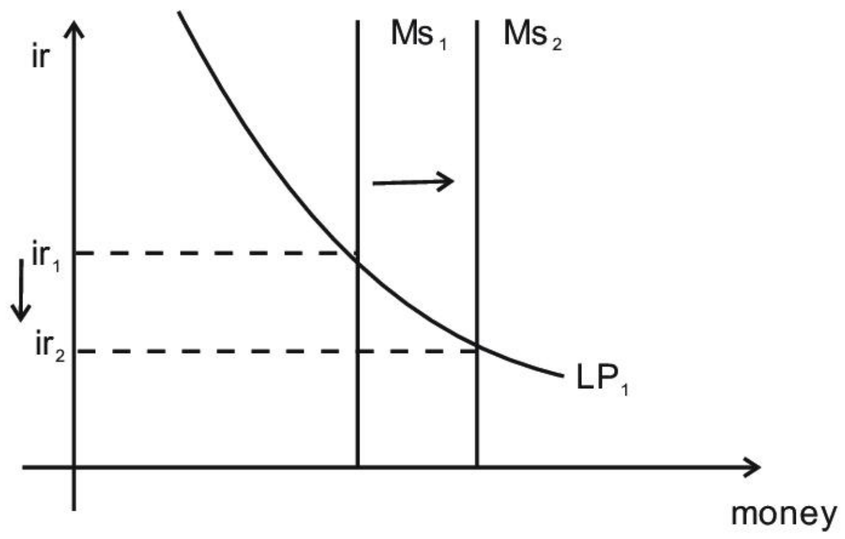
19. D

According to options, a rapid fall in rate of inflation will cause transactionary and precautionary demand of money to fall. This will decrease the liquidity preference and hence cause a fall in interest rates as shown below



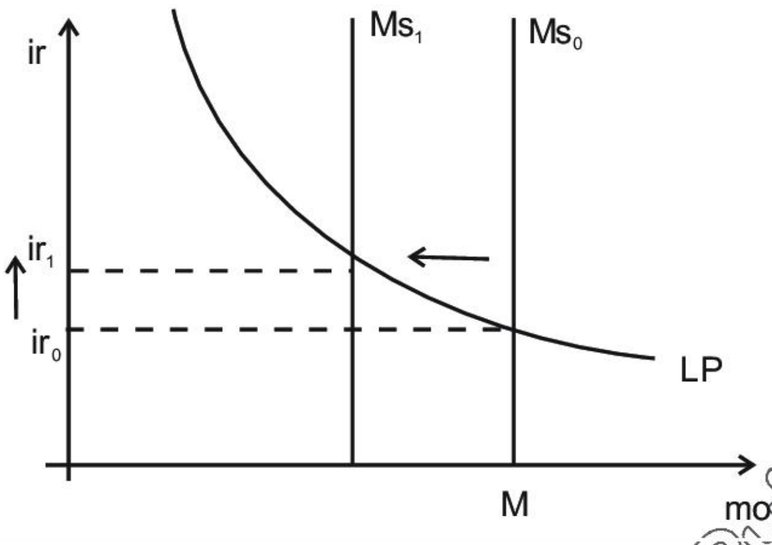
20. B

As bonds are purchased by central banks, redemption of bonds has taken place. Redemption of bonds will, due to credit creation, increase money supply. With increase in money supply, interest rate decreases as shown in diagram below.



21. B

When bonds are sold, money supply in the economy decreases as money in commercial banks decreases. This will the increase interest rate.



An increase in interest rate will reduce consumption (C) and investment (I). Hence aggregate demand will decrease.

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Unit 17 Monetary and development policies

17.1 Quantity theory of money

1. O/N 15/P31/Q17
What must result from a rise in the supply of money, if the income velocity of circulation remains unchanged?

A a fall in unemployment
B a rise in the volume of output
C a rise in the general level of prices
D a rise in the money value of national income

2. M/J 05/P3/Q22
In a closed economy, if the income velocity of circulation of money remains constant, what will be the result of an increase in the money supply?

A a proportionate increase in the level of money income
B a proportionate increase in the level of output
C a proportionate increase in the rate of growth of money income
D a proportionate increase in the rate of growth of output

3. O/N 15/P31/Q20, O/N 11/P31/Q18, O/N 11/P33/Q17
In an economy, the volume of output rises by 2% in a year, while the quantity of money rises by 5%. If the velocity of circulation of money remains the same, what will be the approximate increases in the price level and the money value of national income?

	increase in price level	increase in money value of national income
A	2%	5%
B	2%	7%
C	3%	5%
D	3%	7%

4. M/J 15/P31/Q20
The income velocity of circulation is equal to 2.0.
If the rate of growth of the money supply is 8% and the average price level increases by 4%, what will be the change in real output (transactions)?

A +4% **B** +8% **C** +12% **D** +16%

5. M/J 15/P32/Q22
Assuming a constant income velocity of circulation of money, if the price level increases by 5% and the money supply grows by 2%, what will be the approximate change in real output (transactions)?

A –3% **B** –2.5% **C** +3% **D** +7%

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6. M/J 15/P33/Q24

In an economy, the volume of output falls by 2% in a year, while the quantity of money rises by 3%. If the velocity of circulation of money remains the same, what will be the approximate increases in the price level and the money value of national income?

	increase in price level	increase in money value of national income
A	1%	3%
B	1%	5%
C	5%	3%
D	5%	5%

7. O/N 14/P14/Q22

Assuming a constant income velocity of circulation of money, if the rate of inflation is 10% and the rate of growth of the money supply is 7%, what will be the approximate change in the volume of national output?

A –7% **B** –3% **C** +3% **D** +13%

8. M/J 14/P33/Q23

Assuming a constant income velocity of circulation of money, if real output grows by 2%, and the rate of growth of the money supply is 5%, what will be the approximate change in the price level?

A –3% **B** +3% **C** +5% **D** +7%

9. O/N 12/P31/Q21

A 6 % increase in the money supply leads to a 10 % increase in the level of money income.
What can be deduced from this?

A There has been an increase in the level of output.

B There has been an increase in interest rates.

C There has been an increase in the velocity of circulation.

D The price level has increased by 4 %.

10. O/N 12/P33/Q21

Assuming a constant income velocity of circulation of money, if real output grows by 4 %, and the money supply grows by 3 %, what will be the approximate change in the price level?

A –1 % **B** +1 % **C** +3 % **D** +7 %

11. O/N 09/P32/Q17

Assuming a constant income velocity of circulation of money, if the rate of growth of the money supply is 8% and the average price level increases by 5%, what will be the approximate change in real output?

A –3% **B** +3% **C** +8% **D** +13%

12. O/N 08/P3/Q18

In an economy, the volume of output rises by 3% in a year, while the quantity of money rises by 5%. If the velocity of circulation of money remains the same, what will be the approximate increases in the money value of national income and the price level?

	increase in money value of national income	**increase in price level**
A	5%	2%
B	5%	3%
C	8%	2%
D	8%	3%

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13. O/N 07/P3/Q19

Over a given period, the nominal value of a country's national income increased by 10 % and the average price level increased by 20%.
What can be deduced from this information?

A The country's money supply increased by 10%.

B There was an increase in the income velocity of circulation.

C There was a reduction in the demand for money.

D There was a reduction in the volume of output.

14. O/N 04/P3/Q24

Assuming a constant income velocity of circulation of money, if real output grows by 5 %, and the money supply grows by 2 %, what will be the approximate change in the price level?

A –3 % **B** +2 % **C** +3 % **D** +7 %

15. O/N 03/P3/Q19

Over a given period the nominal value of a country's national income increased by 10% and its value of output by 12%.
What could explain this?

A The country's money supply fell by 2%.

B There was an increase in the income velocity of circulation.

C There was an increase in the balance of trade deficit.

D The country's general price level fell by 2%.

16. O/N 02/P3/Q21, O/N 13/P33/Q21

A 6% increase in the money supply leads to a 4% increase in the level of money income.
What can be deduced from this?

A There has been an increase in interest rates.

B There has been a decrease in the level of output.

C There has been a decrease in the velocity of circulation.

D The price level has increased by 2%.

17. O/N 05/P3/Q16, O/N 97/P3/Q37

Over a given period, money income in an economy increased by 8%. Over the same period, prices rose on average by 6%.
Which can be deduced from this?

A Real income decreased by 2%

B The income velocity of circulation decreased by 2%.

C The money supply increased by 14%

D The volume of output increased by 2%.

18. M/J 95/P3/Q29

The table shows the annual percentage growth in the money supply, output and prices in the UK between 1982 and 1987.

Annual percentage change in	1982	1983	1984	1985	1986	1987
Money supply	10.4	9.7	9.3	15.0	18.0	22.8
Output (real GDP)	1.8	4.2	2.7	3.4	3.4	5.3
Prices (GDP deflator)	7.1	4.6	4.0	6.8	3.3	5.0

Which statement is supported by this data?

A The rate of growth of output rises as the rate of growth of money supply rises.

B The rate of inflation rises as the rate of growth of output rises.

C The real money supply declined steadily over the six years.

D The income velocity of circulation of money is unstable.

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19. O/N 93/P3

If M=the money supply, P=the general price level, Y=real national income and T=the volume of transactions, which of the following ratios represents the income velocity of circulation of money?

A $\frac{M}{PY}$ **B** $\frac{M}{PT}$ **C** $\frac{MY}{P}$ **D** $\frac{PY}{M}$

20. O/N 06/P3/Q17, M/J 02, M/J 01, M/J 93

Over a given period the nominal value of a country's national income increased by 20% and the rate of inflation was 10%. Which statement is correct?

A There was an increase in the volume of output.

B There was an increase in the income velocity of circulation

C There was a reduction in the demand for money

D The country's money supply increased by 10%

21. M/J 91/P3/Q37

The table shows data for a country's national income at current prices and money supply for two years.

	Year 1	**Year 2**
National income	£50 000m	£60 000m
Money supply	£10 000m	£11 000m

It can be concluded that in year 2, compared to year 1, there was an increase in

A Real output

B Bond prices

C The general price level

D The income velocity of circulation of money.

22. M/J 89,M/J 98,M/J 00/P3

In a closed economy, which of the following will be a consequence of a rise in the supply of money, if the money value of national income and the general level of prices both stay constant?

A A fall in unemployment

B A rise in unemployment

C Inflation

D A fall in the income velocity of circulation of money

23. M/J 10/P32/Q22

If the money supply is fixed, a decrease in economic activity

A increases interest rates.

B increases the transactions demand for money.

C raises the liquidity preference schedule.

D reduces the income velocity of circulation.

24. M/J 90/P3, M/J 86

The money supply in an economy is £240 billion and the income velocity of circulation is 5. If the money supply is increased by £10 billion and the income velocity of circulation falls to 4.9, what is the new aggregate level of money income?

A £1 090 billion **B** £1 151 billion **C** £1 175 billion **D** £1 225 billion

25. O/N 97, O/N 96/P3, M/J 92, O/N 86, O/N 84,

The income velocity of circulation of money is the ratio of

A Cash held by the public to the money stock

B Commercial bank reserve assets to the money stock

C National income to the money stock

D The rise in the price level to the rise in the money stock

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26. O/N 94/P3/Q27,O/N 83, O/N 80

In a given year the supply of money in an economy increases by 10%. The level of output increases by 10%, and the level of prices remains constant, which one of the following must be true?

A The income velocity of circulation of money must have increased by 10% over the year.

B The income velocity of circulation of money must have stayed constant over the year.

C There must have been a10% fall in unemployment over the year.

D There must have been a10% rise in employment over the year

27. M/J 18/P33/Q26, O/N 98/P3

An increase in the money supply leaves the price level unchanged.
What could explain this?

A A fall in the level of real output

B A fall in the level of employment

C A fall in the velocity of circulation

D A fall in the volume of transactions

28. O/N 10/P32/Q22

An increase in the money supply leads to a fall in interest rates. What else will decrease as a result of these changes?

A the desire to hold idle money balances

B the price of equities

C the price of government bonds

D the velocity of circulation of money

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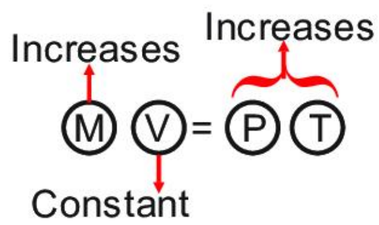
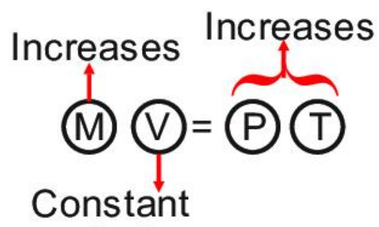
Answers Section

1. D



According to the Quantity Theory of Money, increase in the money supply while constant income velocity of circulation stays constant will cause a proportionate increase in the level of money income. This money income increase may be due to price level or real output increase but none of them will be certain.

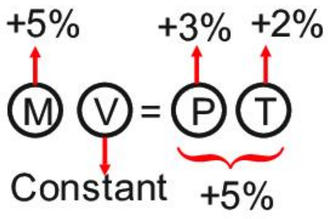
2. A



According to the Quantity Theory of Money, increase in the money supply while constant income velocity of circulation stays constant will cause a proportionate increase in the level of money income. This money income increase may be due to price level or real output increase but none of them will be certain.

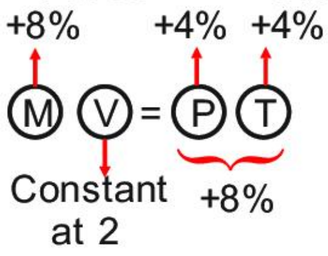
3. C

Increase in M = 5% Increase in T = 2% V=Constant and MV=PT therefore



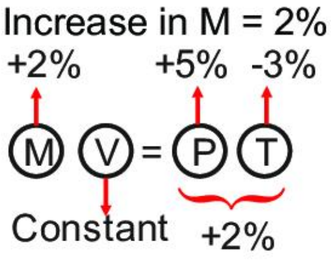
4. A

Increase in M = 8% Increase in P = 4% V=Constant and MV=PT therefore



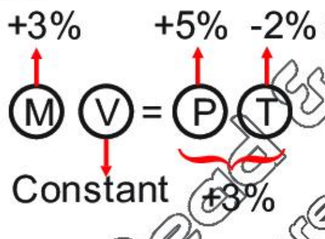
5. A

Increase in M = 2% Increase in P = 5% V=Constant and MV=PT therefore



6. C

Increase in M = 3% Change in output (T) = - 2% V=Constant
National income = PT and MV=PT therefore



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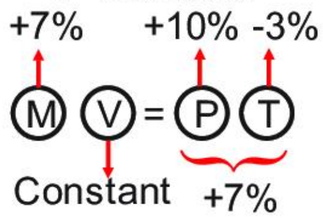
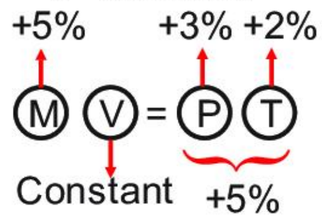
7. B

Increase in M = 7% Increase in P = 10% V=Constant and MV=PT therefore



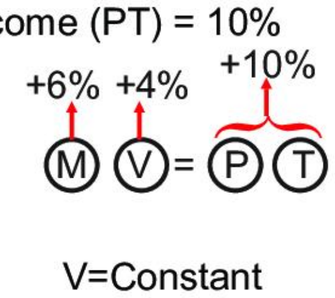
8. B

Increase in M = 5% Increase in T = 2% V=Constant and MV=PT therefore



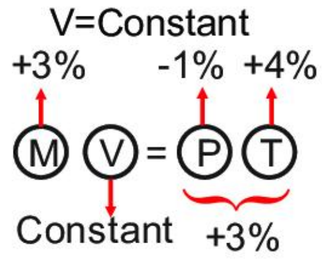
9. C

Increase in M = 6% Increase in National income (PT) = 10% and MV=PT therefore



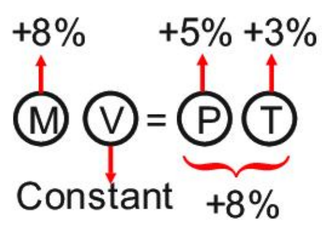
10. A

Increase in M = 3% Increase in T = 4% V=Constant and MV=PT therefore



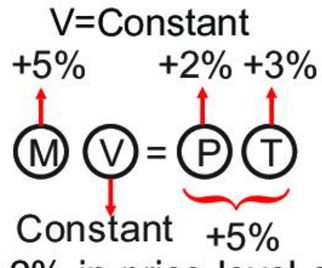
11. B

Increase in M = 8% Increase in P = 5% V=Constant and MV=PT therefore



12. A

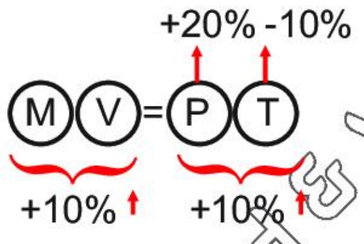
Increase in M = 5% Increase in T = 3% V=Constant and MV=PT therefore



So the remaining change was due to decrease of 2% in price level and an overall increase in value of money national income by 5%.

13. D

According to the Quantity Theory of Money: MV=PT, where M=Money supply, V=Velocity of circulation, P=Price level, and T=Output. PT combined stands for a country's national income. From the given information we know that PT increased by 10%, and the average price level (P) increased by 20%; since national income increased by less than the price level, there must have been a drop in the value of output of the country: a reduction in T. A reduction in T by 10% (therefore, a change of G10%) must have offset the increase in the price level, thereby causing the overall increase in national income to increase by 10% instead of 20%.



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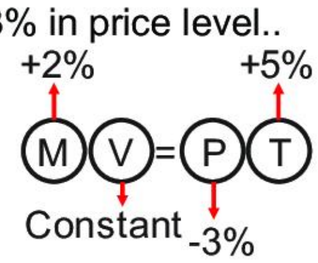
14. A

Increase in M = 2% Increase in T = 5% V=Constant and MV=PT therefore
So the remaining change was due to decrease of 3% in price level..



15. D

Increase in PT =10% Increase in T =12% and MV=PT therefore
So the remaining change was due to decrease of 2% in price level..
%rP = %rPT - %rT = 10 - 12 = - 2%

16. C

According to the Quantity Theory of Money MV = PT
Increase in M = +6%
Increase in PT = +4%
The right side of equation (PT) increased by 4%. The increase in money supply was 6%, so in order to equal the change, the income velocity of circulation has to be decreased by 2%.

17. D

increase in PT = 8 % and increase in P = 6 % and MV=PT
So the remaining change was due to increase of 2% volume of output.
%rT = %rPT - %rP = 8 - 6 = 2%

18. D

%r	1982	1983	1984	1985	1986	1987
M	10.4	9.7	9.3	15.0	18.0	22.8
T	1.8	4.2	2.7	3.4	3.4	5.3
P	7.1	4.6	4.0	6.8	3.3	5.0
$V=\frac{PT}{M}$	1.23	1.99	1.16	1.54	0.62	1.16

As can be observed through the calculations above, there is no stable trend in the income velocity of circulation of money (V).

19. D

According to the Quantity Theory of Money,

$$MV=PY=PT$$

Income velocity of circulation of money is $V = \frac{PY}{M}$

20. A

According to the Quantity Theory of Money: MV = PT
Given Increase in PT (national income) = 20% and Increase in price level = 10 %
therefore Increase in real output (T) = 20 - 10 = 10%
Hence it can be deduced that there was definite increase in volume of output .

21. D

From statements.

	Year 1	Year 2
National income	£50 000m	£60 000m
Money supply	£10 000	£11 000m
Income velocity of circulation = $\frac{PT}{M}$	5	5.45

So there is increase in income velocity of circulation in accordance with Quantity Theory of Money.

22. D

According to the Quantity Theory of Money
MV = PT
Given that, M has increased while PT (money value of national income) remains constant.So in order to fulfill the equation, V should decrease by the same amount as that of increase in M. Therefore, there has been a fall in the income velocity of circulation of money.

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23. D

According to the Quantity Theory of Money
MV = PT Where M= Money Supply V=Income Velocity of Circulation.
P= General Price Level T= Total Output
Given that M=Constant and PT (economic activity) has decreased.
So in order to satisfy the equation only V can decrease. There will be a reduction in income velocity of circulation.

24. D

M_o = £240m V_o = 5 Now M_1 = £240b + £10b = £250b V_1= 4.9
As National income = PT And PT = MV
Hence
New level of National income = 250H4.9 = £1225b

25. C

As per definition, income velocity of circulation is the ratio of national income to money stock:

$$V = \frac{PT}{M} = \frac{\text{National income}}{\text{Money stock}}$$

26. B

According to Quantity Theory of Money MV=PT Where M=Money Supply
V= Income velocity of circulation P= General price level T= Total output
On given conditions M=+10% T=+10% P= constant
As both sides have already been increased by 10%, so V will be constant to fulfill the equation

27. C

As

MV = PT

So with constant price levels, volume of output is also constant. An increase in money supply (M) has to be compensated with fall in income velocity of circulation (V).

28. D

According to the quantity theory of money MV = PT
With constant national income, increase in money supply (M) will decrease velocity of circulation of money (V).

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17.2 Macroeconomic policies

1. O/N 15/P31/Q26

In an economy operating below full employment, which combination of changes will definitely result in an increase in national income?

A a fall in the rate of taxation together with a rise in the saving rate

B a rise in government expenditure together with a fall in the propensity to import

C a rise in investment expenditure together with a rise in the rate of taxation

D a rise in the propensity to save together with a rise in exports

2. O/N 15/P31/Q29

Some European countries experienced a decline in investment spending in 2011-2012.
What might a government do to stop such a decline?

A increase quotas on imports

B lower interest rates

C raise income tax

D set up training courses

3. M/J 15/P31/Q27

In an economy with a fixed exchange rate, which combination of policies is likely to be most effective at tackling both a growing current account deficit on the balance of payments and rising inflationary pressure?

A a budget deficit and higher interest rates

B a budget deficit and lower interest rates

C a budget surplus and higher interest rates

D a budget surplus and lower interest rates

4. M/J 15/P31/Q28

The table gives details of a government's budget over two years.

	2012 / 13 (US$ millions)	2013 / 14 (US$ millions)
government revenue	2 630 000	3 730 000
government spending	3 000 300	3 770 000

What happened to government finances between 2012 / 13 and 2013 / 14?

A The annual budget deficit rose.

B The annual budget surplus fell.

C The national debt fell.

D The national debt rose.

5. M/J 15/P32/Q23

Why will an inflationary process be brought to a halt if the money supply is held constant?

A Consumption will decrease as money incomes decline.

B Government expenditure will have to be reduced as government revenues decline.

C The rate of interest will rise as more money is required for transactions purposes.

D The stimulus to invest will decline as the real burden of company debt rises.

6. M/J 15/P32/Q28

Increased borrowing by the government results in higher interest charges and this leads to less private investment expenditure.
Of what is this an example?

A an automatic stabiliser

B crowding out

C the accelerator

D the substitution effect

7. O/N 15/P33/Q28

In an economy operating below full employment, which combination of changes will definitely result in a decrease in national income?

A a fall in government expenditure together with a rise in the propensity to import

B a fall in the rate of taxation together with a rise in the saving rate

C a rise in investment expenditure together with a rise in the rate of taxation

D a rise in the propensity to consume together with a rise in the rate of taxation

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8. O/N 15/P33/Q29

What could be expected to increase the pressure of demand-pull inflation in an open economy?

A an appreciation of the foreign exchange rate
B an increase in interest rates
C an increase in sales taxes
D an increase in the budget deficit

9. O/N 14/P31/Q28

The government of a major trading country imposes a tariff on imported goods. What is likely to be the impact on the prices paid to the foreign producers of the goods and on the prices paid for the goods by domestic consumers?

	prices paid to foreign producers	prices paid by domestic consumers
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

10. M/J 14/P31/Q19

The table shows a government's expenditure and its tax revenues over the period 2010-2013.

	2010	**2011**	**2012**	**2013**
government expenditure ($ billion)	250	260	280	280
government tax revenue ($ billion)	260	260	270	275

What impact did the changes in the government's fiscal balance have on the national debt and on aggregate expenditure?

		impact on national debt	**impact on aggregate expenditure**
A	2010-2011	no change	no change
B	2011-2012	Increase	raise
C	2012-2013	Decrease	lower
D	2012-2013	Increase	raise

11. M/J 14/P31/Q27, M/J 14/P33/Q27

Which combination of fiscal and monetary policy could be used to reduce both the level of unemployment and the government budget deficit in an economy?

	fiscal policy	**monetary policy**
A	contractionary	expansionary
B	contractionary	unchanged
C	expansionary	Contractionary
D	unchanged	Contractionary

12. M/J 14/P31/Q29

Which combination of changes is most likely to result in the short run in a fall in a country's inflation rate?

	exchange rate	**indirect taxes**
A	higher	higher
B	higher	lower
C	lower	higher
D	lower	lower

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13. M/J 14/P31/Q30

A country has a fixed exchange rate.
Which combination of circumstances would be most likely to cause the country's government to reduce taxation and lower interest rates?

A demand inflation and a balance of payments deficit
B demand inflation and low investment
C unemployment and a balance of payments surplus
D unemployment and imported inflation

14. O/N 14/P32/Q27, O/N 12/P31/Q30

A government decides to pursue a more reflationary fiscal policy and a more deflationary monetary policy. Which combination of changes in policy instruments is consistent with this?

	government expenditure	interest rate	taxation
A	decrease	decrease	decrease
B	decrease	decrease	increase
C	increase	increase	decrease
D	increase	increase	increase

15. O/N 14/P32/Q28

The table shows some indicators of macro-economic performance in the US economy for five decades.

economic target	1950s	1960s	1970s	1980s	1990s
real GDP growth (average %)	4.18	4.43	3.28	3.02	3.03
inflation (average %)	2.07	2.33	7.09	5.66	3.00
unemployment (average %)	4.51	4.78	6.22	7.27	5.76

Between which decades did the US government achieve an overall improvement in its performance with no trade-off between individual policy goals?

A 1950s to 1960s **B** 1960s to 1970s **C** 1970s to 1980s **D** 1980s to 1990s

16. O/N 14/P32/Q29, M/J 11/P32/Q26

Why might a reduction in domestic interest rates have an adverse effect on a country's balance of payments on the current account?

A It will cause a rise in the exchange rate.
B It will make the country's industry less competitive.
C The resulting higher level of economic activity is likely to increase imports.
D There will be an outflow of capital from the country.

17. O/N 14/P32/Q30

At present, a country's government has set its central bank a target rate of inflation of 2%. What is likely to happen to interest rates and the exchange rate if the target inflation rate is raised to 3%?

	interest rates	exchange rate
A	fall	fall
B	fall	rise
C	rise	fall
D	rise	rise

18. M/J 14/P32/Q28

A central bank increases interest rates in order to control inflation.
What is likely to increase as a result of this?

A firms' sales revenue
B investment expenditure
C net capital outflows
D the exchange rate

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19. M/J 14/P32/Q29

What is most likely to result from a devaluation of the £ sterling?

A an increase in foreign direct investment in the UK by global manufacturing firms

B an increase in the number of UK residents taking holidays abroad

C an increase in the number of UK students applying for places in North American universities

D an increase in the supply of foreign workers seeking temporary employment over the summer in the UK

20. O/N 14/P33/Q28

Which policy to correct a balance of payments deficit would be classified as an expenditure dampening policy?

A a devaluation of the exchange rate

B an increase in direct taxes

C an increase in import tariffs

D the introduction of import quotas

21. O/N 14/P33/Q30

What would be an economic benefit to a major trading economy of imposing a tariff on imported goods?

A It would increase labour productivity.

B It would increase pressure on foreign suppliers to reduce their prices.

C It would make the country's exports more competitive.

D It would reduce the prices paid by consumers for imported goods.

22. M/J 14/P33/Q28

What is likely to result from foreign direct investment in developing economies?

A a reduction in local wage levels

B a reduction in tax revenues in developing economies

C a reduction in the range of consumer goods available to the local population

D a worsening of net income flows from investments

23. O/N 13/P31/Q28

What is **not** a supply-side policy measure?

A deregulating industry to encourage more competitive markets

B linking unemployment benefits to the obligation to look for work

C tackling cyclical unemployment by lowering interest rates

D tackling structural unemployment by giving grants for labour mobility

24. O/N 13/P31/Q29

A country has a fixed exchange rate.

Which combination of problems would be most likely to cause the country's government to reduce taxation and lower interest rates?

A demand inflation and a balance of payments current account deficit

B demand inflation and a low level of investments

C high unemployment and a balance of payments current account deficit

D high unemployment and a low level of investment

25. O/N 13/P31/Q30, O/N 04/P3/Q30

An economy has a low level of unemployment. The government increases its expenditure.

Which method of financing the additional expenditure is most likely to cause inflation?

A an increase in borrowing from the Central Bank

B an increase in income taxes

C an increase in sales of state assets to the non-bank private sector

D an issue of bonds to the non-bank private sector

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26. O/N 17/P32/Q20, M/J 13/P31/Q15, M/J 13/P33/Q15

Which combination of circumstances is most likely to lead to an increase in a country's budget deficit?

	total GDP	unemployment	discretionary government spending
A	decreases	rises	decreases
B	decreases	rises	no change
C	increases	falls	increases
D	increases	falls	no change

27. M/J 13/P31/Q26

Legal reforms to reduce the power of trade unions have in many countries reduced inflationary pressures. Of which policy is this an example?

A monetary policy **B** demand side policy **C** fiscal policy **D** supply side policy

28. M/J 13/P31/Q29, M/J 13/P33/Q29

An economy has a balance of payments trade surplus and a high level of inflation.

What would be an appropriate action for a government to take?

A devalue the currency
B reduce direct taxes
C increase the money supply
D remove tariffs on imports

29. O/N 13/P32/Q26

Which combination indicates that a country is operating a 'dirty float'?

	nominal exchange rate	foreign currency reserves
A	depreciates by 20%	decrease by $1 billion
B	depreciates by 20%	unchanged
C	unchanged	decrease by $1 billion
D	unchanged	unchanged

30. O/N 13/P32/Q27

What is a reflationary fiscal measure?

A reducing interest rates
B increasing the money supply
C increasing taxes
D increasing government spending

31. O/N 13/P32/Q28, O/N 13/P33/Q30

A country's government wishes to switch demand away from private consumption towards investment and net exports.

Which combination of policy measures would be most likely to help it achieve this objective?

	interest rates	rate of value added tax
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

32. M/J 13/P32/Q26

The European Union imposes a quota on the volume of garments imported from Brazil.

What is likely to be a consequence?

A a decrease in the price paid by EU consumers for Brazilian garments
B a reduction in the inflation rate in the EU
C a switch to producing lower-value garments by Brazilian textile firms
D the closure of Brazilian-owned textile factories

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33. M/J 13/P32/Q27

Other things being equal, what is likely to result from an increase in interest rates in a country?

A a capital outflow from the country
B a depreciation of the country's currency
C a decrease in consumption
D an increase in investment

34. M/J 13/P32/Q30

Without any change in government policy, what will be the effect of an economic recession on tax revenue and on government expenditure?

	tax revenue	government expenditure
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

35. O/N 12/P31/Q27

A country has a floating exchange rate and an independent central bank with the power to set interest rates. The rate of inflation is currently stable at the central bank's target rate of 2%.
If the central bank's inflation target is raised from 2 % to 5 %, what is likely to happen to interest rates and the exchange rate?

	interest rates	exchange rate
A	fall	fall
B	fall	rise
C	rise	fall
D	rise	rise

36. M/J 12/P31/Q17

Due to a cyclical downturn, a government is experiencing a budget deficit.
If the government wishes to stimulate aggregate demand, which policy would be most effective?

A financing the deficit by borrowing from the Central Bank
B financing the deficit by selling bonds to individuals
C financing the deficit by selling state assets to private firms
D increasing tax rates to eliminate the deficit

37. M/J 12/P31/Q29

The European Union imposes a quota on the volume of garments imported from China.
What is likely to be a consequence?

A an increase in the prices received by Chinese textile firms
B a reduction in the prices paid by EU consumers
C a switch to producing lower-value garments by Chinese textile firms
D a reduction in the volume of garments exported from China to non-EU markets

38. M/J 12/P32/Q29

What would be an appropriate government action to reduce both a balance of payments current account surplus and the rate of inflation?

A increase the money supply
B increase direct taxes
C remove tariffs on imports
D devalue the currency

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39. M/J 12/P32/Q30, M/J 16/P33/Q29

The government of Lesotho introduces a programme to promote exports and to encourage firms to grow by subsidising local entrepreneurs.

What effect is this likely to have on incomes, the balance of payments current account deficit and government expenditure in Lesotho?

	incomes	**balance of payments current account deficit**	**government expenditure**
A	fall	uncertain	rise
B	rise	reduce	no change
C	fall	reduce	rise
D	rise	uncertain	rise

40. M/J 12/P33/Q28

Other things being equal, what is likely to result from a reduction in interest rates in a country?

A an appreciation of the country's currency
B a decrease in consumption
C a decrease in investment
D an outflow of short-term capital

41. O/N 11/P31/Q30, O/N 11/P33/Q29

When might the effectiveness of fiscal expansion in increasing the level of output be increased?

A when it is accompanied by an increase in the money supply
B when it leads to an appreciation of the country's exchange rate
C when it results in a decrease in the price of government bonds
D when the price level increases

42. O/N 11/P32/Q25

A government currently has a balanced budget. It is considering the possible variations in tax revenue and government expenditure shown.

options	**tax revenue**	**government expenditure**
W	increase	increase
X	increase	reduce
Y	reduce	increase
Z	reduce	reduce

Which three options have the potential to move the budget into surplus?

A W, X and Y **B** W, X and Z **C** W, Y and Z **D** X, Y and Z

43. O/N 11/P32/Q30

An economy has a flexible exchange rate. It raises interest rates above the level existing in other countries.

What will be the likely effect on the level of domestic demand for goods and services and on the demand for the country's exports?

	domestic demand	**export demand**
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

44. M/J 08/P3/Q30

Why might a reduction in domestic interest rates improve the current account of a country's balance of payments?

A It will cause an appreciation in the exchange rate.
B It will reduce the amount of interest paid to foreign holders of the country's financial assets.
C The resulting higher level of economic activity is likely to increase imports.
D There will be an outflow of capital from the country.

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45. M/J 07/P3/Q24

What is likely to happen to interest rates and aggregate demand when a central bank sells government securities?

	interest rates	aggregate demand
A	fall	fall
B	fall	rise
C	rise	fall
D	rise	rise

46. M/J 05/P3/Q26

In an economy with flexible exchange rates an increase in government spending is financed by borrowing from the public.

What is likely to be the effect on interest rates and on the level of net exports?

	effect on interest rates	effect on net exports
A	increase	increase
B	increase	decrease
C	decrease	decrease
D	decrease	increase

47. O/N 04/P3/Q28

Why might a rise in domestic interest rates improve a country's balance of payments on current account?

A Domestic firms will become more competitive.
B It will result in a fall in the exchange rate.
C It will result in a reduction in spending.
D There will be an inflow of short-term capital.

48. M/J 04/P3/Q28

The monetary authorities increase interest rates in order to control inflation.

What is likely to increase as a result of this?

A firms' sales revenue
B investment expenditure
C net capital outflows
D the exchange rate

49. M/J 02,M/J 05/P3/Q30, M/J 16/P31/Q30

What is most likely to increase as a result of a rise in interest rates in a country?

A the level of house prices
B the inflow of short-term foreign capital
C the level of private investment
D the return on capital investment

50. O/N 01/P3/Q28

Which of the following will be likely to result from an open market purchase of securities by the central bank?

A A fall in short-term capital inflows
B A fall in the quantity of money
C A rise in the level of unemployment
D A rise in the rate of interest

51. M/J 98/P3

What is likely to increase as a result of a rise in the real rate of interest in a country?

A Domestic investment and gross domestic product
B Employment and consumer spending
C Inflationary pressure and profit margins
D The exchange rate and capital inflows

52. O/N 96,M/J 01/P3

Other things being equal, what is likely to result from an increase in interest-rates?

A A capital inflow
B A depreciation of the currency
C An increase in consumption
D An increase in investment

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53. M/J 90/P3

What would be the most likely effect of a prolonged rise in mortgage interest rates?

A A rise in real house prices and an increase in house building

B A rise in real house prices and a decrease in house building

C No change in real house prices or in house building

D A fall in real house prices and a decrease in house building

54. M/J 12/P31/Q26

What is likely to result from the discovery of oil reserves in a developing economy?

A a more equal distribution of income and wealth

B an increase in the real exchange rate

C an increase in the competitiveness of commercial agriculture

D a reduction in the volume of imports of manufactured goods

55. M/J 11/P32/Q29

What would be an economic benefit to a major economy of imposing a tariff on imported goods?

A It would increase labour productivity.

B It would increase pressure on foreign suppliers to reduce their prices.

C It would make the country's exports more competitive.

D It would reduce the prices paid by consumers for imported goods.

56. M/J 11/P32/Q28

A country decides to join a group of countries which maintain fixed parities for their currencies and forbid any restriction on foreign trade and payments.

What will the country have to forgo to maintain a fixed parity for its currency?

A an independent anti-monopoly policy

B an independent fiscal policy

C an independent interest rate policy

D an independent prices and incomes policy

57. M/J 11/P32/Q27

What would be classified as a supply side policy measure?

A additional legislation to restrict the power of trade unions

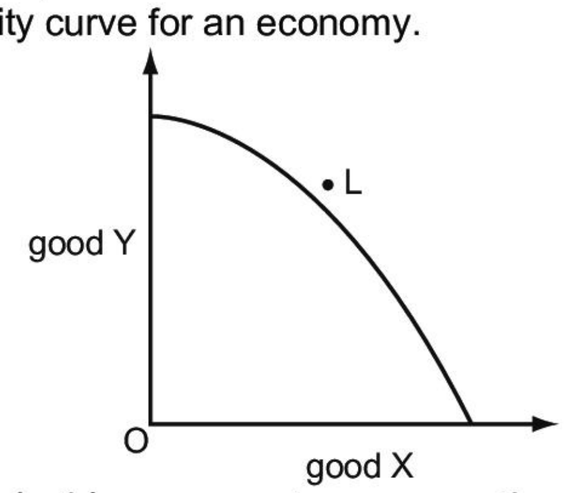
B a reduction in the government's fiscal deficit

C an open market sale of securities

D the imposition of a tariff on imported goods

58. M/J 17/P32/Q3, O/N 13/P31/Q1, M/J 06/P3/Q1

The diagram shows the production possibility curve for an economy.



What might make it possible for consumers in this economy to consume the combination of goods X and Y indicated by the point L?

A a reduction in unemployment

B the attainment of productive efficiency

C the elimination of a monopoly in the production of good X

D trade with other economies

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59. M/J 15/P33/Q19

A developing economy's exports are price inelastic in demand, while its imports are price elastic.
What would cause a rise in GDP and a fall in the deficit on the current account of the balance of payments?

A a devaluation of its currency

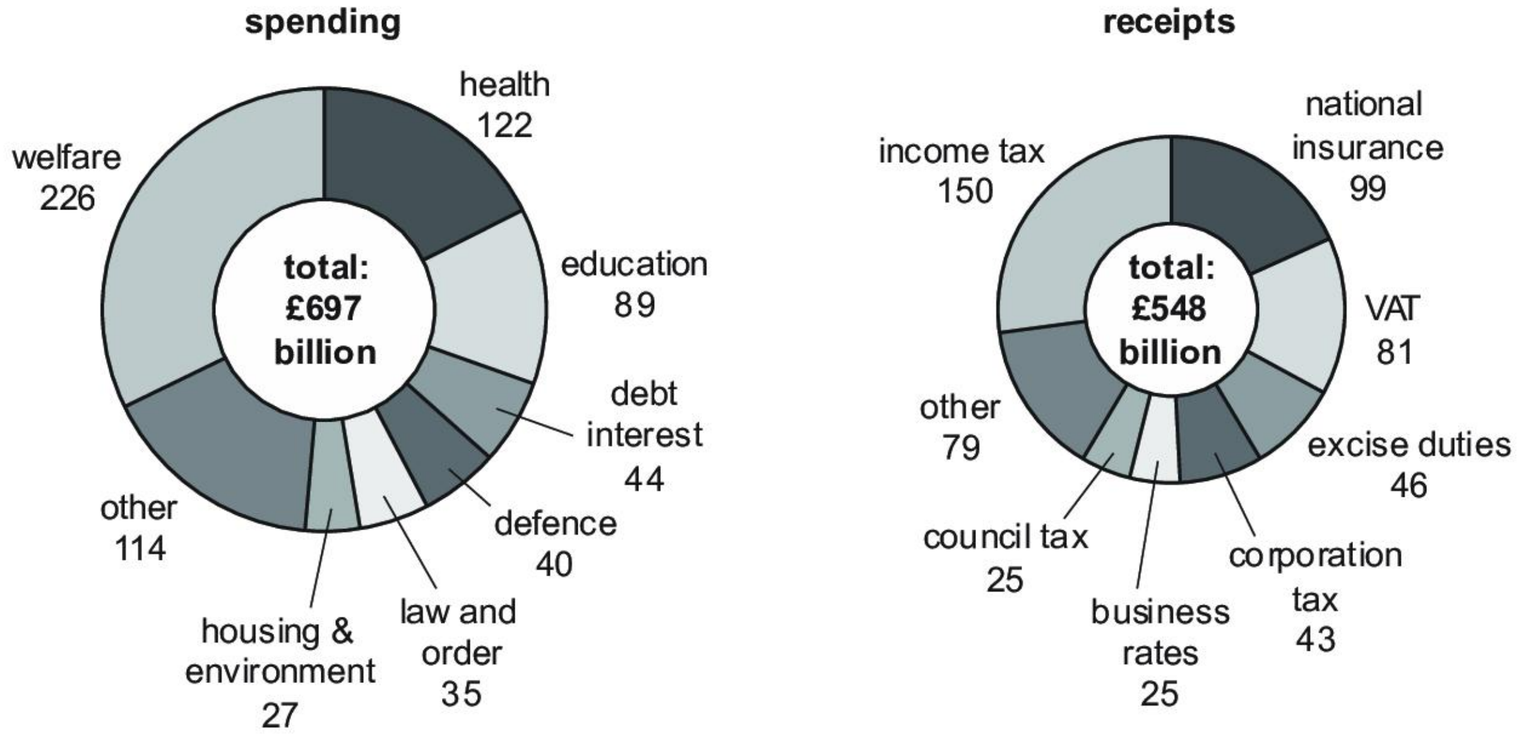
B a fall in the price of its imports

C a reduction in the existing quota limits imposed on its exports

D the development abroad of synthetic substitutes for its exports

60. O/N 13/P31/Q26, MAR 16/P32/Q30

The diagram shows details of the British Government's estimated spending and receipts for 2010–2011. All figures in UK £bn.



What can be concluded from the diagram?

	effect of largest spending item on income distribution	type of largest receipt item	overall budget balance
A	less equitable	indirect tax	deficit
B	less equitable	indirect tax	surplus
C	more equitable	direct tax	deficit
D	more equitable	direct tax	surplus

61. O/N 13/P31/Q15

What are the losses in economic efficiency that are likely to result from a policy of income redistribution from the rich to the poor?

	disincentive effects	distortion of individual choices between work and leisure	administrative costs of the redistribution policy
A	yes	yes	no
B	yes	yes	yes
C	no	no	no
D	no	no	yes

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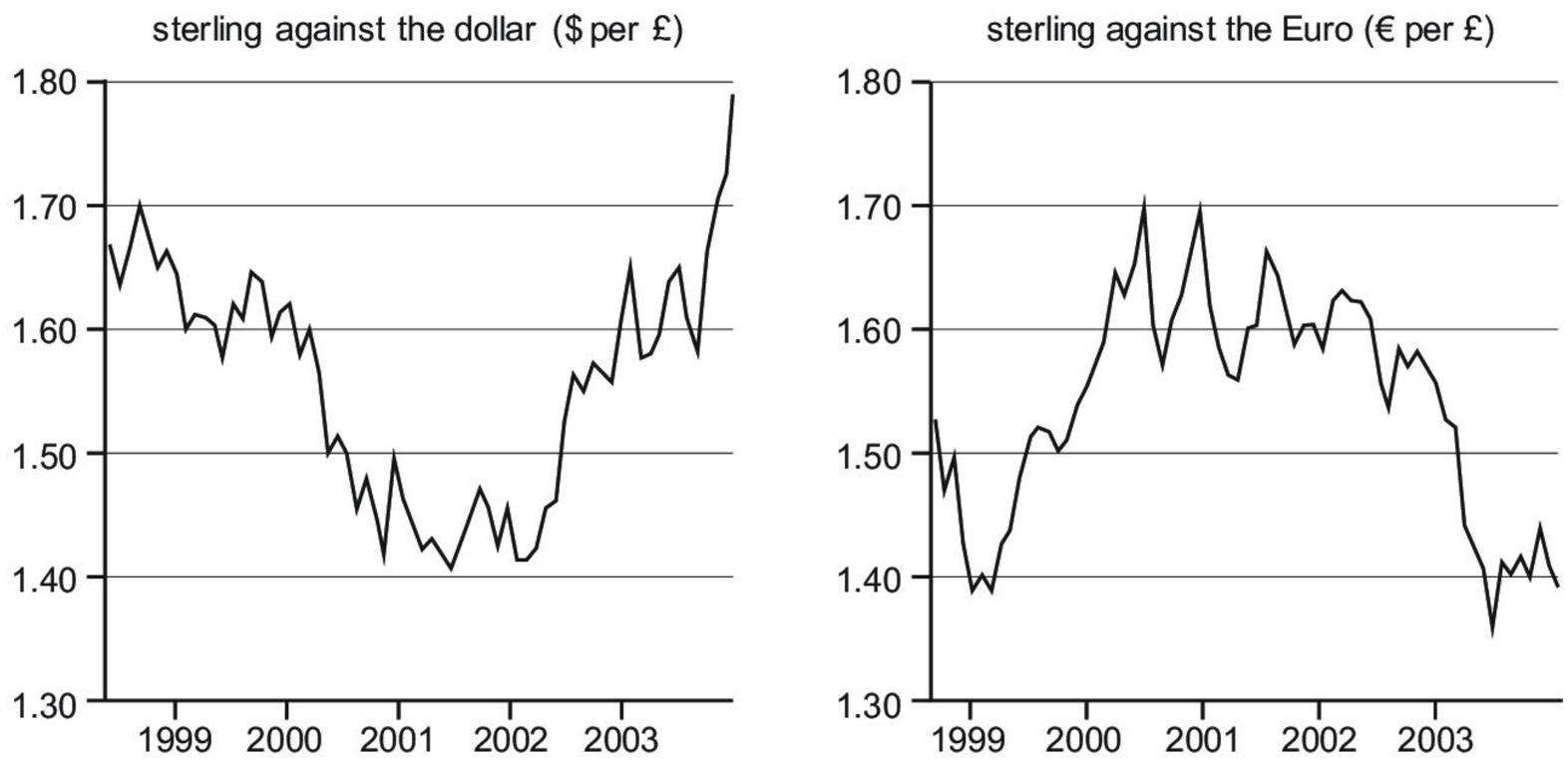
62. M/J 13/P31/Q28

Which combination indicates that a country has a freely floating exchange rate?

	nominal exchange rate	foreign currency reserves
A	depreciates by 20%	decrease by $1 billion
B	depreciates by 20%	unchanged
C	unchanged	decrease by $1 billion
D	unchanged	unchanged

63. O/N 11/P31/Q27, O/N 11/P33/Q26

The graphs show the changes in the exchange rate of the £ sterling against the US $ and against the Euro between 1998 and 2003.



Which statement is **incorrect**?

A Between 1998 and 2001 the £ sterling depreciated against the US $.

B Between 1998 and 2001 the £ sterling appreciated against the Euro.

C Between 1998 and 2001 the Euro depreciated against the US $.

D Between 2001 and 2003 the US $ appreciated against the Euro.

64. O/N 17/P33/Q30, O/N 13/P32/Q30

During year 1, a government announces a temporary one-year reduction in the level of indirect taxation balanced by an equivalent temporary one-year increase in direct taxation.

What is most likely to be the impact on household saving in year 1 and in year 2?

	impact on household saving in year 1	impact on household saving in year 2
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

65. O/N 12/P32/Q17

An economist wishes to judge whether an economy's budget deficit is excessive. What would be the most appropriate way to measure the budget deficit when making this judgement?

A as a percentage of foreign currency reserves

B as a percentage of GDP

C in inflation adjusted terms

D in purchasing power parity terms

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66. O/N 12/P33/Q26

A developing country's level of debt rises. In which circumstance is this **least** likely to be a problem?

A Global aggregate demand is falling.

B Global real interest rates rise.

C The country's Gross Domestic Product rises by less than its debt.

D The debt finances capital investment.

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Answers Section

1. B
A rise in government, investment and exports expenditure will raise national income but an increase in tax rate, saving rate or propensity to save or import will reduce national income. Hence, a rise in government expenditure together with a fall in the propensity to import will increase national income.

2. B
A decline in investment can be stopped by lowering interest rate by expansionary monetary policy. Increasing quotas for imports will raise volume of imports and reduction in demand for local made goods hence reducing investment. Raising income tax will also reduce investment through accelerator. Setting up training courses will not directly and immediately affect investment.

3. C
Both budget surplus (T>G) and increase in interest rate will reduce economic activity and therefore reduce inflationary pressure as well as imports in the country tackling both current account deficit and inflation.

4. D

	2012 / 13	2013 / 14
government revenue	2630000	3730000
government spending	3000300	3770000
government budget	-370300	-40000

As budget deficit is there in both years therefore government needs to borrow , hence national debt increases.

5. C
An inflationary process will increase precautionary and transactions demand which will shift the liquidity preference curve to right causing an increase in interest rate. Increase in interest rate will reduce consumption, investment and net exports (if exchange rate is floating and demand for exports and imports is elastic) leading to fall in aggregate demand and hence halt inflationary process.

6. B
This is crowding out effect. Suppose the economy is in recession and government enacts a discretionary fiscal policy in the form of increased government spending. Also suppose that the monetary authorities hold the supply of money constant. To finance its budget deficit, the government borrows funds in the money market. The resulting increase in the demand for money raises the price paid for borrowing money: the interest rate. Because investment spending varies inversely with the interest rate, some investment will be choked off or crowded out.

7. A
A fall in government, investment and exports expenditure will reduce national income but an increase in tax rate, saving rate or propensity to save or import will reduce national income. Hence, a fall in government expenditure together with a rise in the propensity to import will increase national income.

8. D
An appreciation of the foreign exchange rate and an increase in interest rates will reduce net exports and demand pull inflation. An increase in sales taxes will raise cost of production and therefore leads to cost push inflation.
An increase in the budget deficit means government spending is greater than tax revenue (G>T) which will raise aggregate demand and therefore accelerates demand pull inflation.

9. B
If the government of a major trading country imposes a tariff on imported goods, it will increase prices paid by the domestic producers. As it is a major trading country, there will be reduction in demand in international market and therefore reduce price in international market. Hence, prices paid to foreign producers will decrease.

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10. B

Both aggregate expenditure and national debt will increase if there is budget deficit (G>T) and vice versa.

	2010	**2011**	**2012**	**2013**
government expenditure ($ billion)	250	260	280	280
government tax revenue ($ billion)	260	260	270	275
government budget deficit (T-G)	260-250=+10	260-260=0	270-280=-10	275-280=-5
national debt	decrease	unchanged	increase	increase
aggregate expenditure	decrease	unchanged	increase	increase

11. A

Government budget deficit means government spending is greater than tax revenue (G>T). In order to reduce unemployment aggregate demand should be raised and can be done by expansionary monetary policy in which an increase in money supply will reduce interest rate which will increase consumption, investment and net exports eventually raising aggregate demand and GDP and hence reduces cyclical unemployment. To reduce budget deficit, government need to increase tax revenue and lower government spending which is a contractionary fiscal policy. Hence, A is correct option.

12. B

A reduction in indirect taxes will reduce cost of production, raises aggregate supply and hence reduces cost push inflation. A higher exchange rate makes exports relatively expensive and imports relatively cheaper therefore reduces current account balance (X-M) if demand for exports and imports is elastic. It will reduce aggregate demand and therefore reduces demand pull inflation. Moreover, a higher exchange rate will also reduces the cost of imported raw materials and therefore reduces cost push inflation. Hence, B is the correct option.

13. C

Reduction in taxes and lowering interest rate will cause an increase in aggregate demand and national income. Moreover, greater economic activity will induce more imports. Hence, government will opt these policies if there is unemployment and balance of payments surplus in the economy. Hence, C is the correct answer.

14. C

Fiscal policy refers to changing taxes and government to change the direction of the economy whereas monetary policy is primarily concerned with changing interest rates. A reflactionary fiscal policy can also be called expansionary fiscal policy which is enforced to boost aggregate demand. In order to increase aggregate expenditure, the government reduces taxes to increase disposable income and increases government spending to directly increase national income. A deflationary monetary policy is contractionary thus the central bank will increase interest rates to make borrowing more expensive to ensure reduction in aggregate expenditure.

15. D

There is normally a trade-off between inflation and real GDP and unemployment. Normally lowering inflation leads to lower GDP growth and higher unemployment. However, between the 80s and the 90s, the US economy was able to increase GDP growth and lower both inflation and unemployment.

16. C

The reduction in domestic interest rates will increase consumption and borrowing, so interest-sensitive imports (those which are expensive, for example) will be bought more. The answer, therefore, is option C.

17. A

If the target rate of inflation is now 3%, and the current rate of inflation is 2%, then the government will reduce the interest rate, so that consumption and investment increase, causing aggregate demand to rise, therefore causing an increase in the price level—in order to increase the inflation rate. Also, since higher inflation will cause an increase in the price of domestically produced goods and exports for foreign buyers, there will be a decrease in exports and, consequently, a decrease in the demand for domestic currency, which will cause a depreciation (or reduction) in the exchange rate.

18. D

Higher interest rates mean more borrowing costs so both investment and consumption will fall as a result. So firms are unlikely to experience more sales revenue. And since it has become more expensive to obtain credit, investment expenditure will fall. Net capital outflows will decrease as foreign investors will look into 'cash in' the higher interest rates because they'll earn more by depositing their money in financial institutions. The exchange rate may increase because foreign investors may want to save their money in the country's domestic banks, increasing the demand for the country's currency, leading to an appreciation of its exchange rate.

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19. A

If the sterling is valued less than the prices of exports from UK will be cheaper in the international market. Global manufacturing firms may see this as an opportunity to earn higher profits and will look to set up plants in UK, so foreign direct investment will increase. Foreign currency will be relatively expensive for UK residents so they're less likely to go abroad. UK students will have to pay their tuition fee in US dollars and because of the depreciation of the sterling it will become more expensive to pay. Foreign workers will look to send money home in the form remittances, but because the pound is valued less their families will receive less money so they'll look to work elsewhere.

20. B

An expenditure dampening policy means government aims to reduce aggregate expenditure in the economy. Expenditure dampening policies include contractionay monetary policy (decrease in money supply and increase in interest rate) and contractionary fiscal policy (increase in direct tax and reduction in government spending). Hence B is correct answer.

21. B

When a major trading economy of imposes a tariff on imported goods, it reduces the demand for the product and therefore put a pressure on foreign suppliers to reduce their prices.

22. D

Foreign direct investment through MNCs in developing economies brings capital inflows initially but later on they take profits back causing net income outflows and worsening of current account balance of developing countries.

23. C

Lowering interest rate is expansionary monetary policy which is a demand side policy. Hence lowering interest rate is not a supply-side policy.

24. D

Lowering tax rate will raise aggregate demand, GDP and employment. On the other hand, lowering interest rate will raise the level of investment in the economy.Hence, D is correct option.

25. A

Financing government expenditure if causes an increase in money supply, it will most likely cause inflation.
Financing government expenditure from central bank or from treasury bills will raise the money supply in the economy. Money supply may also increase if government sells foreign reserves in foreign exchange market or balance of payment moves into surplus. Hence A is correct answer.
Financing government expenditure from taxation or commercial banks through the sale of bonds and securities will decrease money supply. However, financing government spending from general public through bonds and securities or privatization will keep the money supply unchanged.

26. B

A budget deficit means government spending is greater than tax revenue(G>T). A decrease in GDP will cause a reduction in tax revenue but government spending will stay unchanged being autonomous to national income hence will cause a budget deficit. An increase in unemployment will increase government spending on unemployment benefits and reduce tax revenue due to lower incomes and spending, hence will lead to budget deficit. An increase in discretionary government spending on merit or public goods will also cause budget deficit if it becomes greater than tax revenue.

27. D

Legal reforms are part of supply side policies.

28. D

Removal of tariff on imports will increase the imports reducing balance of payments surplus. Moreover, there will be a decrease in aggregate demand if imports increase, causing reduction in demand pull inflation. Cost push inflation will also decrease as there will be reduction in price of imported raw materials and energy.

29. A

A "dirty float" exchange rate is as the figure illustrates is when the government places both an upper and lower limit on the exchange rate. So as long as the market equilibrium is in between them, it does not intervene. If the exchange rate does happen to change by a large amount, then the government will have to buy its own currency using foreign reserves to ensure it is back in between the set bounds. So option A is correct.

30. D

Fiscal policy refers to the government using government spending and/or taxes to change aggregate expenditure in the economy. Reflationary or expansionary fiscal policy is when taxes are lowered while government spending is boosted to increase aggregate demand. So only option D is an action that is taken under reflationary fiscal policy.

31. B

In a bid to boost investment, the first action the government needs to take is lower interest rates since it drops borrowing costs for firms so they will invest more. This can lead to higher investment and net exports since domestic firms will expand their presence in the economy. In order to discourage private consumption a value added tax will force consumers to save instead of spend.

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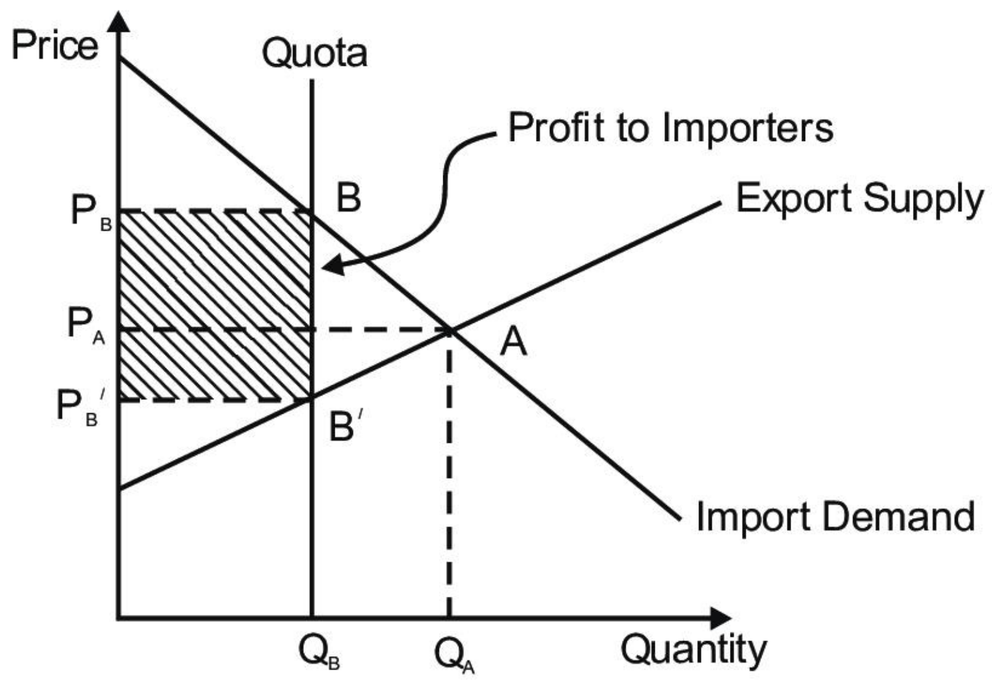
32. D



Effects of a Quota

A quota is basically a policy enforced by the government which only allows a fixed number of goods to be imported into the country. As the graph shows a quota increased the price from P_A to P_B so increases prices paid by consumers. The quota will increase prices and therefore increasing inflation rate in the EU. Firms will not switch to lower-value garments there is a fixed quantity that can be sold so lower value garments will actually be less profitable for them. Brazilian-owned textile factories will close since many of them will earn less revenue because they will now be able to sell fewer products in the EU.

33. C

An increase in interest rate will result in capital inflow since more people would want to invest in the country because of the higher return. More people would invest in the country so, they would have to buy the country's currency and that would appreciate its value. An increase in interest rate would make it more expensive to borrow and spend and therefore both consumption and investment will fall. So option C is correct.

34. B

During a recession, people earn less so the government earns less tax revenue. Also since more people are unemployed the government will have to spend more automatically to support the unemployed, so option B is correct.

35. A

An increase in aggregate demand will cause increase in inflation from 2% to 5% and it will be possible if both interest rate and exchange rate fall. A fall in interest rate will induce more consumption and investment which are components of aggregate demand. A fall of exchange rate will increase net exports and aggregate demand if demand for exports and imports is inelastic. It will also cause an increase in cost of imported raw-materials which will raise cost push inflation.

36. A

In order to stimulate aggregate demand, government needs to finance its budget deficit in such a way that it increases money supply.

Financing budget deficit from central bank or from treasury bills will raise the money supply in the economy. Money supply may also increase if government sells foreign reserves in foreign exchange market or balance of payment moves into surplus. Hence A is correct answer.

Financing budget deficit from taxation or commercial banks through the sale of bonds and securities will decrease money supply. However, financing budget deficit from general public through bonds and securities or privatization will keep the money supply unchanged.

37. A

An imposition of quota by EU will limit imports from China will create a shortage of Chinese textile products, hence raising the prices of Chinese products in EU. Hence Chinese textile firms will receive higher prices.

38. C

Increasing money supply would probably increase the inflation rate so that does not solve one of the problems. Increasing direct taxes lowers spending in the economy so it will reduce inflationary pressure but it will not solve the current account surplus. Removing tariffs would lower import prices thus increasing the volume of imports so reducing the current account surplus and with lower import prices this would dampen inflationary pressures so it solves both problems. So option C is correct. Devaluing the currency would increase import prices, thus increasing inflation in the economy.

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39. D

With the programs to promote exports and local entrepreneurship, income in the country is likely to rise. It is uncertain if the government's policies to promote exports is effective and it is unknown if how much of the extra income is spent on imports so the impact on current account deficit is not clear. Since subsidizing local entrepreneurs, means government expenditure will rise. So option D is the right option.

40. D

A reduction in interest rate will cause outflow of short-term capital, increasing supply of domestic currency in foreign exchange market and exchange rate depreciation. Reduction in interest rate will also increase consumption and investment in the economy. Hence, only D is correct.

41. A

Fiscal expansion (G>T) will cause an increase in transactions demand for money leading to an increase in liquidity preference and interest rate provided that money supply is held constant, hence will create a crowding out effect and limit the effectiveness of fiscal expansion. If it is accompanied with increase in money supply, it will not create a crowding out effect and therefore will make fiscal expansion more effective.

42. B

A budget surplus would occur if tax revenue is greater than government expenditure. Considering the government has a balanced budget, if the government increases government expenditure and reduces taxes, then that would most likely lead to a budget deficit. So the other three options have the potential to move into a budget surplus, which are options W, X and Z.

In option W, if tax revenue is increased more than increase in government spending, it will lead to budget surplus. In option Z, if government spending falls more than decrease in tax revenue, it may lead to budget surplus too.

43. A

With higher interest rates, borrowing or consumption on credit becomes more expensive. So both households and firms will cut down spending, reducing the domestic demand for goods. Moreover, firms that export goods will also have to increase prices since they face higher borrowing costs. This will decrease export demand as well.

44. B

The "balance of payments" record the inflows and outflows of cash into and from a country. The current account of the balance of payments includes, among other things, the inflows and outflows of cash due to incomes paid to local owners of factors of production abroad and foreign owners of domestic factors of production. Among these incomes is "interest", which is the factor income for owners of capital. Since a reduction in the domestic interest rate would cause lesser interest to be paid out as factor income to foreign owners of domestic financial assets, this would cause a lower outflow of cash from the economy. Because anything that reduces the outflow of cash from the economy will improve the current account, option B is the answer.

45. C

When bonds are sold, money supply in the economy decreases as money in commercial banks decreases. This will increase interest rate. An increase in interest rate will reduce consumption (C) and investment (I). Hence aggregate demand will decrease.

46. B

Government can borrow from public through sale of bonds which will increase supply of bonds in the market causing price of bonds to fall. Interest rate has an inverse relationship with price of bonds, hence interest rate will increase. An increase in interest rate will attract short-term capital inflows causing demand for currency to increase in foreign exchange market and therefore an appreciation of exchange rate. Appreciation of exchange rate will make exports expensive and imports cheaper which will reduce net exports if demand for exports and imports is price elastic. Hence B is correct answer.

47. C

An increase in interest rate decreases consumption (C) and investment (I). This leads to decrease in aggregate demand (AD) and hence national income (Y) and price level.

Decrease in national income will cause a decrease in imports due to decrease in spending and this will improve balance of payments. Moreover, local goods will be more price competitive as compared to imports which will also reduce imports and improve current account.

48. D

A rise in interest rate will urge foreign investors to save in domestic currency. This will increase the demand of domestic currency. Moreover, it will make domestic investors to save in domestic banks and this reduces the supply of domestic currency.

Hence the capital inflow increases, moreover the effect of demand and supply will cause exchange rate to appreciate.

49. B

A rise in domestic interest rates will mean that there is a higher reward for saving; therefore, there will be a capital-inflow caused by an increase of "hot money" being saved in local banks by foreigners in order to maximize the interest they will earn.

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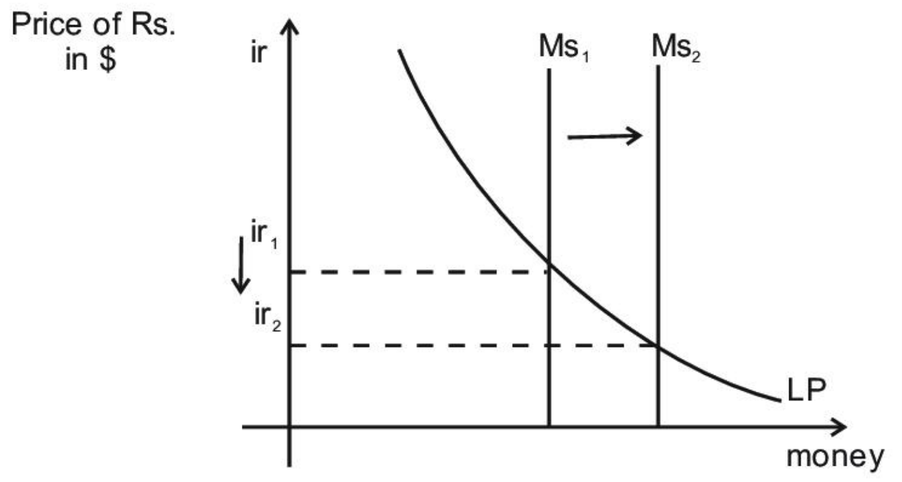
50. A

Purchase of bonds (securities) increases money supply into the economy. This increase in money supply causes a decrease in interest rates as shown by diagram below

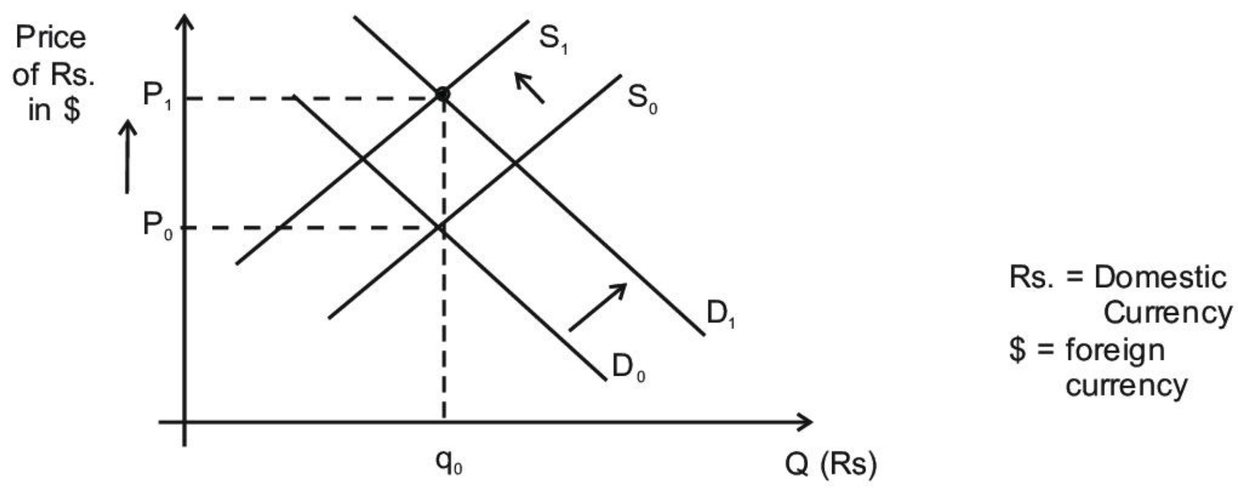


If the decrease in domestic interest rate is greater than that of foreign then it will urge foreign investors to save abroad and this will decrease demand of domestic currency. Hence capital inflow will decrease as shown in option A.

51. D

A rise in the interest rate will urge foreign investors to save in domestic currency. This will increase the demand for domestic currency. Moreover, it will make domestic investors to save in domestic banks and this reduces the supply of domestic currency.

Hence the capital inflow increases; moreover, the effect of demand and supply will cause exchange rate to appreciate. The diagram shows it below.

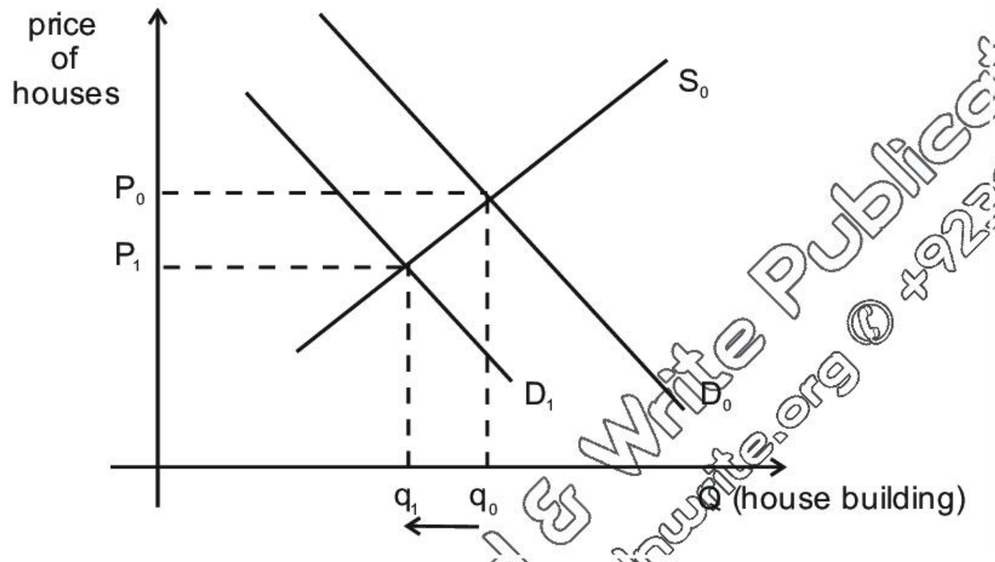


52. A

If domestic interest rate is greater than that of foreign countries, foreigners will save their money in the domestic country to earn greater interest. Hence, the capital inflow will increase, leading to an increase in demand for domestic currency.

53. D

Increase in mortgage interest rates will increase the cost of borrowing on taking loans for house building. This will reduce the demand of labour and hence for house building and lead to fall in real house prices as follows.



54. B

Discovery of oil reserves in a developing economy will reduce its imports and increase it exports, therefore less supply and more demand for its currency leading to appreciation of its currency.

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55. B

Tariffs are custom duties levied on imports as a method of protectionism; by raising the prices of foreign products, tariffs discourage imports' consumption—thus, tariffs are also one of many expenditure-switching policies. Due to this, tariffs 'would increase the pressure on foreign suppliers to reduce their prices,' so that they may maintain their sales; therefore, option B is the answer. Since import tariffs would switch consumer expenditure from imported goods to domestically produced ones, they would increase 'production' by domestic firms to meet increased demand, but would not increase labour 'productivity'—which is the number of units that labour can produce per a specific period of time (so, option A is wrong). Imposing a tariff on imported goods would not make the exports of a country more competitive, because exports are sold to foreign consumers, and tariffs do not affect the prices of commodities they purchase; rather, it makes domestically produced commodities more competitive (option C is wrong). Furthermore, as mentioned in the explanation for the answer (option B), tariffs raise the prices consumers pay for imported goods, not reduce them; option D is, therefore, incorrect.

56. C

By 'fixed parities,' the question is referring to an adjustable-peg exchange rate regime, where the value of the exchange rate (ER) is fixed within a publicly announced, narrow band, and the ER is manipulated to stay within that band. Since the economy is an open one, and there are restrictions on the imposition of trade barriers, out of all the answer choices only 'an independent interest rate policy' is the most effective, because changes in interest rates not only affect capital inflows and outflows, but also cause changes in consumer spending on imports, causing increases or decreases in the demand and supply for ER, allowing it to be adjusted. Option C is, therefore, the right answer. Option A is wrong because there is no reason as to why an independent anti-monopoly policy should affect the ER of a country's currency. Whereas both options B and D allow prices to be controlled, they will not be as effective as altering the exchange rate of an economy, since they will, at most, affect trends for imports and exports—this makes options B and D incorrect.

57. A

Trade union pressures often urge businesses to increases their wage rates and hence it leads to cost push inflation. By minimizing trade union influence, demands for higher wages will decrease and it decreases cost push inflation. Hence Aggregate Supply is affected by this scenario. So it is supply side policy.

58. D

The production possibility curve (PPC) shows the maximum possible combinations of two commodities which a country can produce using all of its available resources with economic efficiency—within the constraints of a given state of technology. Since, to produce on the PPC, all resources in an economy must already be fully employed, to consume a combination of goods indicated by point L the economy must consume beyond what it is able to produce. This is made possible by trade with other economies, because, then, any extra consumption can be fulfilled through imports (assuming that the country has a favorable terms of trade)—and imports are not dependent on an economy's current productive capacity. Option D, therefore, is the answer. Since, to produce on the PPC, all resources in an economy must already be fully employed, a reduction in unemployment would only bring the economy closer to producing on the PPC itself—not transcending it and consuming point L; ergo, option A is the wrong one. An economy achieves 'productive efficiency' when it can no longer produce additional amounts of a good without lowering the production level of another product; this happens when the economy is producing at any point on the PPC, because, if the economy moves to any other point on the PPC, it will have to reduce the amount it manufactures of one product to compensate for the increase in the production of another commodity. Thus, even if an economy is productively efficient, it is impossible to consume a bundle of goods represented by point L; option B is wrong. The elimination of a monopoly will lead an economy to benefit from economic efficiency. However, this will not alter the existing productive capacities of the economy—the PPC will not shift. It will not be possible to consume a combination of goods represented by point L; option C is also wrong.

59. A

A devaluation of its currency will make exports cheaper and imports expensive. According to Marshal-Lerner condition, if combined elasticity of demand for exports and imports is elastic (which is in this case), exchange devaluation will improve current account balance and therefore increases AD and GDP. Hence A is correct answer.

60. C

Government Budget = Tax revenue - Government spending = 548 - 697 = -149 (Deficit)
Largest spending item is welfare which makes more equitable distribution of income and hence correct answer is C.

61. B

Redistribution of income from rich to poor means more progressive tax system which increases the disincentive effect. It will also change the choices pattern of work or leisure and there will be administrative costs of the policy. Hence B is correct answer.

62. B

Free floating exchange rate will have changes in nominal exchange rate but there wont be any change in foreign reserves, Hence B is correct answer.

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63. D

Between 2001 to 2003 US dollar depreciated against the pound (from $1.4 to $1.8 per pound in the leftward diagram) and pound depreciated against euro (from 1.70 to 1.4 euros per pound in the rightward diagram). If dollar depreciated against pound and pound depreciated against euro then dollar depreciated against euro, Hence D is correct answer.

64. B

A reduction in indirect taxes such as VAT and GST means that consumers are being incentivized to spend more since most goods are now cheaper, so savings in year 1 will fall; however, since the government announced the increase in direct taxation beforehand, the public will make sure to save less (and, consequently, spend more) in year 1, while saving more in year 2—future expectations play an important role here. The answer, therefore, is option B.

65. B

Economists normally use a budget deficit as a percentage of GDP, since it shows how large the deficit is in terms of the size of the economy. For example, if a budget deficit is $10 million but GDP is $50 million then this a large budget deficit. On the other hand if the budget deficit is $ 1 billion but the economy's size is $ 1 trillion then this a very small deficit since it is less than 1% of the economy's output.

66. D

An increase in debt is a problem but it will be least likely if debt arises due to finances to capital investment which will cause an economic growth later on.

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17.3 Automatic stablizers

1. O/N 06/P3/Q30
What does a government need to do to maintain a balanced budget?

A allow automatic stabilisers to work
B keep tax rates and benefit rates unchanged
C raise taxes in a slump and lower taxes in a boom
D aim to keep output close to the full employment level

2. O/N 05/P3/Q29
How do automatic stabilisers work?

A by reducing government deficits in times of recession
B by reducing fluctuations in disposable income
C by reducing fluctuations in the exchange rate
D by increasing the size of the investment multiplier

3. O/N 04,O/N 08/P3/Q29
Without any change in government policy, what will be the effect of an economic recession on tax revenue and on government expenditure?

	tax revenue	government expenditure
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

4. M/J 95,M/J 97/P3/Q26
A country experiences an increase in unemployment due to a deficiency of aggregate demand. Assuming that tax rates and rates of unemployment benefits remain unchanged, what will be the effect on tax revenue an government expenditure?

	tax revenue	government expenditure
A	Decrease	Increase
B	Decrease	No change
C	Increase	Decrease
D	No change	Increase

5. O/N 02/P3/Q30
Which of the following is **not** an automatic stabiliser?

A income tax
B profits tax
C state retirement pension
D unemployment benefit

6. M/J 10/P32/Q29
What will be the impact of an increase in marginal tax rates?

A an increase in the propensity to save
B an increase in the value of the investment multiplier
C a strengthening of work incentives
D a strengthening in the operation of automatic stabilizers

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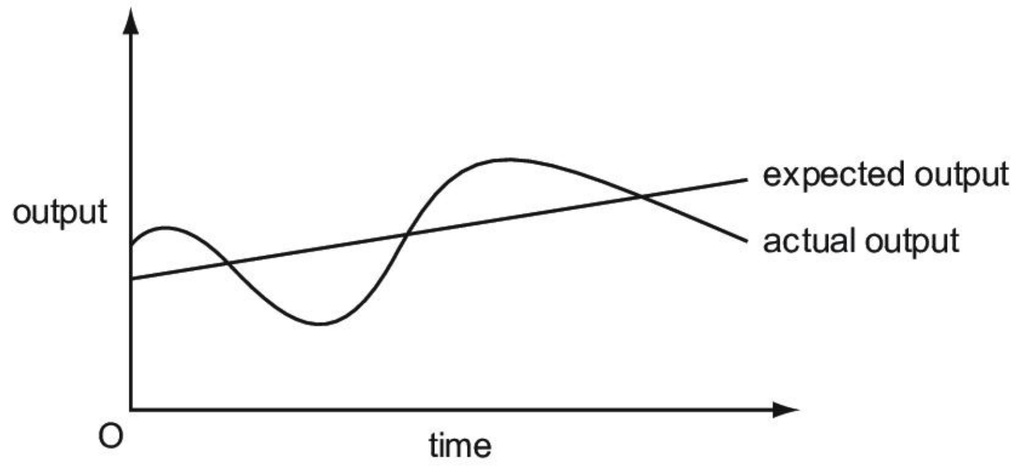
7. M/J 17/P31/Q28, M/J 12/P33/Q30

A government responds to cyclical fluctuations in output by keeping tax rates and benefit rates unchanged.
What is the government seeking to achieve by adopting this fiscal policy?

A to allow automatic stabilisers to work
B to keep output at the full employment level
C to maintain a constant balanced budget
D to ensure that its budget is in surplus over the trade cycle

8. M/J 15/P31/Q26, O/N 11/P31/Q29, O/N 11/P33/Q28

The diagram shows the actual output and expected output of an economy.



What would help to reduce the divergence of actual output from expected output?

A a balanced budget
B a stable exchange rate
C automatic stabilisers
D stable interest rates

9. M/J 15/P32/Q30

A government's budget is balanced at a time when the economy is fully employed, but an aggregate demand shock causes a decline in national income.
What will be the result if the government keeps its tax rates and level of spending unchanged?

A a cyclical budget deficit
B a cyclical budget surplus
C a structural budget deficit
D a structural budget surplus

10. M/J 15/P33/Q30

A country experiences an increase in unemployment due to deficiency of aggregate demand.
Assuming that tax rates and rates of unemployment benefit remain unchanged, what will be the effect on tax revenue and government expenditure?

	tax revenue	government expenditure
A	decrease	increase
B	decrease	no change
C	increase	decrease
D	no change	increase

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11. M/J 14/P32/Q27

What will be the impact of an increase in marginal tax rates?

A an increase in the propensity to save

B an increase in the value of the investment multiplier

C a strengthening of work incentives

D a strengthening in the operation of automatic stabilisers

12. O/N 13/P31/Q27

What do governments need to do to allow automatic stabilisers to work?

A adjust taxes in order to achieve a balanced budget

B keep welfare benefit rates and tax rates unchanged

C lower both taxes and government expenditure in a slump

D lower taxes in a boom and raise taxes in a slump

13. M/J 16/P32/Q27

When would an economic recession result in an increase in a government's budget deficit?

A The government increases tariffs on imports with inelastic demand and keeps the total amount it spends on unemployment benefit unchanged.

B The government keeps the unemployment benefit rate and direct and indirect tax rates unchanged.

C The government reduces foreign aid and widens the tax base.

D The government reduces the unemployment benefit rate and decreases the tax free allowance on income tax.

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Answers Section

1. C
In order to maintain a balanced budget, the government uses automatic stabilizers to reduce the fluctuations in the trade cycle. In case of boom, national income rises and progressive tax system will allow the government to increase tax revenue. In a recession, lesser national income will decrease tax revenue.

2. B
National income decreases. So it will make those people exempted from tax who were initially dragged into tax brackets. Moreover, it will also push higher tax bracket people in lower ones so that they pay lesser tax so tax revenue decreases.
As Aggregate Demand decreases, national income decreases. The government has to pay more unemployment benefits as more people become unemployed. More money is injected and spending increases. This is how automatic stability works.

3. B
In a recession, national income decreases, so it will make those people exempted from tax who were initially dragged into tax brackets. Moreover, it will also push higher tax bracket people in lower ones so that they pay lesser tax, so tax revenue decreases.
As Aggregate Demand decreases national income decreases. The government has to pay more unemployment benefits as more people become unemployed. More money is injected into the economy and spending increases. This is how automatic stability works.

4. A
As aggregate demand decreases, national income will decrease. Those who were in greater tax bracket will now in lower tax brackets. In addition indirect taxes (GST, VAT, etc.) will also decrease. Hence there will be decrease in tax revenue. There will be greater unemployment so it will force to spend more on unemployment benefits leading to greater spending.

5. C
State retirement pension is neither a form of tax nor is it included in government spending, so it cannot be an automatic stabilizer.

6. D
An increase in marginal tax rates will increase the taxes on higher income bracket and reduce it on lower income bracket. This will therefore help in automatic stabilizers.

7. A

8. C

9. A
A decline in national income will reduce tax revenue but leaves autonomous government spending unchanged leading to a cyclical budget deficit.

10. A
Less people employed means lower incomes and spending therefore both income and indirect tax revenue falls. With greater unemployment, government have to more unemployment benefits therefore government expenditure increases.

11. D
An increase in mpt (marginal propensity to tax) will not change people's propensity to save. Investment multiplier is 1/mpw. Since tax is a withdrawal the greater will be mpt the higher will be the denominator and the smaller will be the value of the investment multiplier. Higher tax rates discourage people from working, automatic stabilizers look to 'stabilize' or correct the economy, for instance during a boom tax rates will be high to cool down aggregate demand whereas during a recession, there will be a lot of room to cut tax rates, so the economy could return to growth much more easily.

12. B
Automatic stablizers include government welfare payments and progressive tax system. Both automatically stablize the economy and government need to just keep welfare benefit rates and tax rates unchanged. Hence B is correct answer.

13. B
If government keeps rate of unemployment benefits unchanged, economic recession will lead to more number of unemployed and therefore government expenditure on unemployment benefits increases. On the other hand, recession will lead to lower incomes and therefore lower tax revenue in direct taxes. Recession will also reduce spending and less revenue will be collected in indirect taxes. Hence option B will lead to budget deficit.

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17.4 Multiple topics of chapter 17

1. **M/J 11/P32/Q27**
What would be classified as a supply side policy measure?
A additional legislation to restrict the power of trade unions
B a reduction in the government's fiscal deficit
C an open market sale of securities
D the imposition of a tariff on imported goods

2. **M/J 11/P32/Q22**
The table shows some indicators of macro-economic performance in the US economy for five decades.

economic target	1950s	1960s	1970s	1980s	1990s
real GDP growth (average %)	4.18	4.43	3.28	3.28	3.03
inflation (average %)	2.07	2.33	7.09	7.09	3.00
unemployment (average %)	4.51	4.78	6.22	6.22	5.76

Between which decades did the US government achieve an overall improvement in its performance with no trade-off between individual policy goals?
A 1950s to 1960s
B 1960s to 1970s
C 1970s to 1980s
D 1980s to 1990s

3. **O/N 10/P32/Q27**
What could be expected to increase the pressure of demand-pull inflation in an open economy?
A an appreciation of the foreign exchange rate
B an increase in indirect taxes
C an increase in interest rates
D the imposition of import controls

4. **O/N 10/P32/Q30**
A country introduces import quotas.
The suppliers of imported goods charge market-clearing prices.
Assuming the demand for imports is price-inelastic, what will be the impact on the country's balance of trade and on its terms of trade?

	balance of trade	terms of trade
A	improves	improve
B	improves	worsen
C	worsens	improve
D	worsens	worsen

5. **O/N 10/P32/Q24**
Which feature of the Indian economy could explain why the purchasing power parity exchange rate of the Rupee is much higher than its market exchange rate?
A high levels of duty on imported goods
B high levels of rural unemployment
C the relatively low price of goods not traded internationally
D the relatively low rate of inflation

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6. M/J 10/P32/Q26

Which policy is most likely to reduce a balance of payments deficit without causing inflation?

A a devaluation of the exchange rate
B an increase in import tariffs
C an increase in indirect taxes
D an increase in direct taxes

7. O/N 09/P32/Q28

Which policy is most likely to help to correct an adverse balance on the current account of the balance of payments?

A abolishing tariffs
B devaluing the currency
C reducing direct taxes
D reducing indirect taxes

8. M/J 09/P32/Q29

In 2004 China's ability to exploit its comparative advantage in cotton production increased.
What could explain this change?

A a fall in the value of the currency of India, a major cotton producer
B a reduction of the import quota on Chinese cotton into the European Union
C a rise in the wages of Brazilian cotton workers matched by an increase in their productivity
D the removal of the United States of America's subsidy to its cotton growers

9. O/N 08/P32/Q28

The European Union imposes a quota on the volume of garments imported from China. What is likely to be a consequence?

A a reduction in the profit margins on garments produced by Chinese textile firms
B a reduction in the inflation rate in the EU
C a switch to producing higher-value garments by Chinese textile firms
D the closure of Chinese-owned textile factories in Thailand

10. O/N 08/P32/Q30

A country's government wishes to switch demand away from private consumption towards investment and net exports.
Which combination of policy measures would be most likely to help it achieve this objective?

	interest rates	rate of income tax
A	increase	Increase
B	increase	Decrease
C	decrease	Increase
D	decrease	Decrease

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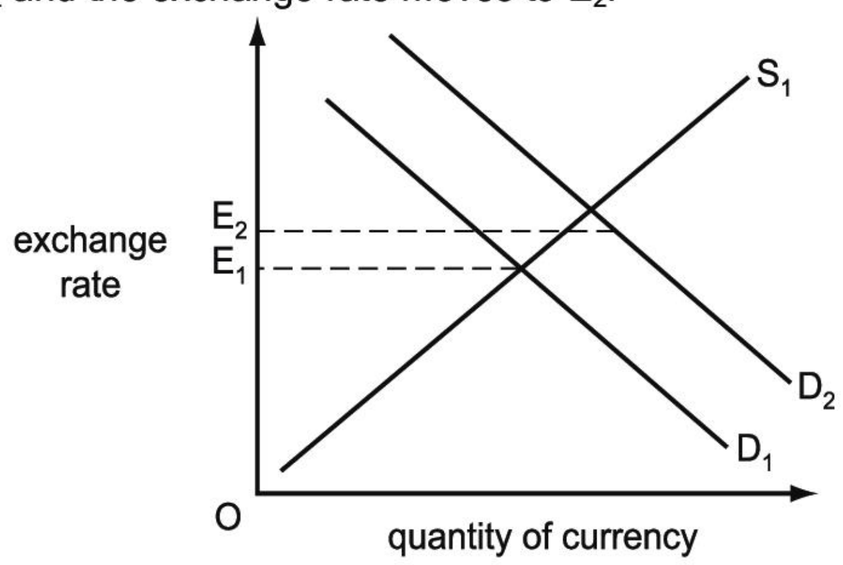
11. O/N 07/P3/Q30

In the diagram, D_1 is the initial demand curve for a country's currency, S_1 is the initial supply curve, and OE_1 is the initial exchange rate.
The demand curve then shifts to D_2 and the exchange rate moves to E_2.



What can be deduced from this?

A Exchange rates are freely fluctuating.
B The country's authorities are operating a managed float.
C At E_2, the country's foreign exchange reserves will fall.
D Interest rates have fallen.

12. O/N 07/P3/Q28

What is an example of an expansionary supply side policy?

A an increase in tariffs
B an increase in interest rates
C an increase in spending on welfare
D an increase in spending on training benefits

13. O/N 07/P3/Q29

In which combination of circumstances is an increase in government expenditure likely to result in the largest increase in output?

	initial level of unemployment	means of financing additional expenditure
A	High	borrowing from the banking system
B	High	increase in tax rates
C	low	increase in tax rates
D	low	issues of bonds to non bank private sector

14. M/J 07/P3/Q29

Legal reforms to reduce the power of trade unions have in many countries reduced inflationary pressures. Of which policy is this an example?

A monetary policy
B demand side policy
C fiscal policy
D supply side policy

15. M/J 17/P31/Q27, M/J 07/P3/Q30

Which combination of policy measures is most likely to reduce unemployment?

A lowering both the exchange rate and domestic interest rates
B lowering the exchange rate and increasing direct taxation
C raising both the exchange rate and domestic interest rates
D raising both the exchange rate and direct taxation

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16. O/N 06,M/J 09/P32/Q29

An economy with a floating exchange rate is in recession and at the same time has a deficit on the current account of its balance of payments.
Which policy combination would be most likely to help with both of these problems?

	interest rates	tax rates
A	decrease	unchanged
B	decrease	increase
C	increase	unchanged
D	increase	increase

17. O/N 06,O/N 09/P32/Q26

An economy has unemployed resources and a flexible exchange rate. It lowers interest rates below the level prevailing in other countries.
What will be the likely effect on the level of domestic demand for goods and services and on the demand for the country's exports?

	domestic demand	export demand
A	increase	increase
B	increase	decrease
C	decrease	decrease
D	decrease	increase

18. O/N 06/P3/Q25

What would cause an expansionary fiscal policy to be relatively ineffective?

A a low marginal propensity to import
B a fixed exchange rate
C a fixed money supply
D large-scale unemployment of resources

19. M/J 06/P3/Q30

What is likely to be the effect of an oil price increase on the global economy?

A a strengthening of demand inflation
B a weakening of cost inflation
C a decrease in the rate of growth
D a decrease in unemployment

20. M/J 06,O/N 09/P32/Q29

A government decides to pursue a more deflationary fiscal policy and a more reflationary monetary policy. Which combination of changes in policy instruments is consistent with this?

	government expenditure	interest rate	taxation
A	decrease	decrease	increase
B	decrease	decrease	decrease
C	increase	increase	decrease
D	increase	increase	increase

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21. M/J 06/P3/Q28
Which combination indicates that a country has a freely floating exchange rate?

	nominal exchange rate	foreign currency reserves
A	depreciates by 20%	decrease by $1 billion
B	depreciates by 20%	unchanged
C	unchanged	decrease by $ billion
D	unchanged	unchanged

22. O/N 05/P3/Q14
The value of government benefits that households are able to claim currently depends on their level of income.
What would reduce the extent of the resulting poverty trap?

A a campaign to encourage more households to apply for the benefits to which they are entitled
B an increase in the level of government benefits
C a reduction in the rate at which benefits are withdrawn as a household's income increases
D the targeting of benefits on those in greatest need

23. O/N 05/P3/Q30
Which government policy will increase aggregate demand?

A raising indirect taxation
B reducing the budget surplus
C removing import quotas
D removing subsidies

24. O/N 05/P3/Q27
The economy of a country is simultaneously experiencing a balance of payments deficit, a budget deficit, demand inflation and unemployment. The government decides to cut personal income taxes.
What does this suggest is its main macroeconomic objective?

A to improve the balance of payments position
B to reduce the budget deficit
C to reduce the level of unemployment
D to reduce the rate of inflation

25. O/N 05/P3/Q28
A developing economy attracts additional foreign direct investment. What is likely to be the effect on its visible trade balance and on its invisibles balance?

	visible trade balance	invisibles balance
A	improve	improve
B	improve	worsen
C	worsen	improve
D	worsen	worsen

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26. M/J 05/P3/Q30

A country introduces import quotas.
The suppliers of imported goods charge market-clearing prices.
Assuming the demand for imports is price-elastic, what will be the impact on the country's balance of trade and on its terms of trade?

	balance of trade	terms of trade
A	improves	improve
B	improves	worsen
C	worsens	worsen
D	worsens	improve

27. O/N 17/P33/Q28, M/J 05/P3/Q27

Which of the following is an appropriate government policy for closing a deflationary gap?

A an increase in the rate of interest
B an open market sale of bonds
C an increase in government spending
D an increase in income tax

28. M/J 04/P3/Q29

What is most likely to be increased by a policy of increased direct taxes and lower government spending?

A the balance of payments deficit
B the budget deficit
C the rate of inflation
D the level of unemployment

29. O/N 03/P3/Q27

What is the major cause of high rates of inflation in many developing economies?

A balance of payments deficits
B budget deficits
C low levels of unemployment
D overvalued exchange rates

30. O/N 03/P3/Q30

When might the effectiveness of fiscal expansion in increasing the level of output be reduced?

A when it leads to the appreciation of the currency
B when it results in an increase in the price of government bonds
C when it is accompanied by an increase in the money supply
D when the price level remains unchanged

31. M/J 03/P3/Q29

If the unemployment that exists in a country is judged to be mainly cyclical, which is the most effective policy the government could implement?

A cut welfare spending on benefits
B improve information about job vacancies
C reduce tax rates
D raise interest rates

32. M/J 03/P3/Q30

Which policy is likely to reduce a balance of payments deficit without causing inflation?

A a reduction in government spending
B a devaluation of the exchange rate
C an increase in import tariffs
D an increase in indirect taxes

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33. O/N 02/P3/Q27

Which of the following policies is specifically designed to reduce the level of structural unemployment?

A a reduction in interest rates

B a reduction in the level of direct taxation

C the provision of retraining schemes

D an increase in the level of state benefit paid to the unemployed

34. M/J 02/P3/Q28

A country has a floating exchange rate, full employment and an expansionary fiscal policy. The government decides to make the central bank independent with the power to determine monetary policy.
If the central bank adopts a zero inflation target, what is likely to happen to interest rates and the exchange rate?

	interest rates	exchange rate
A	fall	fall
B	fall	rise
C	rise	fall
D	rise	rise

35. M/J 02/P3/Q29

Which measure could be expected to reduce the pressure of demand-pull inflation in an open economy?

A a depreciation of the foreign exchange rate

B a reduction in interest rates

C a reduction in the rate of tax on goods and services

D a removal of import controls

36. M/J 00/P32

A government decides to pursue a more reflationary fiscal policy and a deflationary monetary policy. Which of the following is consistent with this policy change?

	Government expenditure	Interest rates	Taxation
A	Decrease	Increase	Increase
B	Decrease	Decrease	Increase
C	Increase	Decrease	Decrease
D	Increase	Increase	Decrease

37. O/N 97/P3

Which government policy increases public sector debt?

A increasing the burden of taxation on current income earners.

B privatizing loss-making public corporations.

C selling government bonds and other stocks.

D reducing expenditure on the armed forces.

38. O/N 97/P3

The government of a country wishes to raise the level of aggregate monetary demand in its economy.
Which of the following should the government seek to increase?

A the general level of interest rates.

B the level of private investment.

C the marginal propensity to save.

D the size of the budget surplus.

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39. O/N 95/P3/Q36

Which combination of problems would be most likely to cause a government to increase taxation and raise interest rates?

A demand inflation and a balance of payments deficit.

B demand inflation and low investment.

C unemployment and a balance of payments deficit.

D unemployment and imported inflation.

40. O/N 93/P3

A country experiences a fall in unemployment.
Other things being equal, what are the likely effects if this on indirect tax revenue, direct tax revenue and government spending?

	Indirect tax revenue	Direct tax revenue	Government spending
A	increase	increase	increase
B	increase	increase	decrease
C	increase	decrease	decrease
D	decrease	increase	increase

41. M/J 92,O/N 97/P3

Which assets provide investors with most certainty over future purchasing power?

A bank deposits.

B government bonds.

C index-links savings certifications.

D ordinary shares of companies.

42. M/J 91/P3

Which of the following policies would most likely assist the achievement of full employment in an economy with unemployed resources?

A abolishing restrictions on hire purchase.

B encouraging saving.

C raising income tax.

D reducing the minimum school leaving age.

43. M/J 86,M/J 90/P3

In a situation of inflation, diagnosed as caused by excess of demand, which of the following policies is likely to be most effective in controlling the rise in prices?

A the imposition of import controls.

B a reduction in the level of interest rates.

C an increase in social security benefits.

D an increase in the level of direct taxation.

44. M/J 16/P33/Q17

It has been argued that when income tax rates imposed on individuals are increased from zero towards 100%, tax revenue initially increases, but at some point it will decrease.
If this argument is correct, it follows that

A governments should forgo any attempt to relieve poverty via fiscal policy.

B income tax rates should be set to maximise government tax revenue.

C taxes should be levied on expenditure rather than income.

D there are limits to the re-distributive effects of progressive taxation.

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45. O/N 12/P32/Q28

During a recession, a government increases its expenditure on goods and services by $10 million but leaves tax rates unchanged.
Why might the subsequent increase in national income be less than $10 million?

A Increased government borrowing increases interest rates.

B The marginal propensity to consume is less than 1.

C The marginal propensity to import is greater than 0.

D There is no accelerator effect on investment.

46. O/N 12/P33/Q22

During a recession a government's expenditure exceeds its tax revenue. Which policy might prevent upward pressure on interest rates?

A privatisation of government owned enterprises

B purchases of government bonds by the country's central bank

C sales of foreign currency from the official reserves

D sales of government bonds to the general public

47. M/J 92/P3

The government increases its expenditure but keeps the money supply unchanged.
Why might this be ineffective in raising the level of output and employment in a recession?

A It would be likely to lead to an increase in the price level.

B It would be likely to lead to an increase in interest rates.

C It would lead inevitable to an increase in wage inflation.

D It would lead inevitable to a depreciation of the currency.

48. M/J 13/P33/Q30

What does a government need to do to maintain a balanced budget?

A keep tax rates and benefit rates unchanged in a slump

B raise taxes in a slump and lower taxes in a boom

C raise both tax rates and benefit rates in a boom

D raise both tax rates and benefit rates in a slump

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Answers Section

1. A
Trade union pressures often urge businesses to increases their wage rates and hence it leads to cost push inflation. By minimizing trade union influence, demands for higher wages will decrease and it decreases cost push inflation. Hence Aggregate Supply is affected by this scenario. So it is supply side policy.

2. D
The answer is option D, because between the 1980s to 1990s the US government managed to achieve price stability (a lower inflation rate) and lesser unemployment—both of which are macroeconomic aims—at the cost of a lower real GDP growth. Since higher real GDP growth is a macroeconomic aim as well, the lower GDP growth becomes a trade-off to achieve the other two macroeconomic aims.

3. D
An 'open economy' is one in which commodities are not only bought from domestic producers, but also through foreign ones because of international trade. 'Demand-pull inflation' is a type of inflation caused by an excess of demand chasing too less a supply. The imposition of import controls will reduce the number of imports allowed into an open economy, causing consumers to turn to domestic producers to fulfill the excess demand. All of that excess demand now being diverted towards local producers will increase consumption expenditure (C), and decrease expenditure on imports [thus increasing the amount for net exports, (X-M)], causing an increase in aggregate demand (AD), leading to a rightward shift of the AD curve, increasing the price level ; option D is, therefore, correct. An appreciation of the foreign exchange rate will cause exports to become expensive for foreign consumers and imports to become relatively cheaper for domestic consumers. This will increase expenditure on imports (M) and reduce expenditure on exports (X), reducing the figure for net exports, (X-M), causing a leftward shift in the AD curve, causing the price level to fall (and this makes option A incorrect). An 'indirect tax' is a regressive tax applied directly on commodities, rather than on sources of income. An increase in indirect taxes is a measure of deflationary fiscal policy, which is meant to reduce AD. Increasing indirect taxes will lead to lower real income as goods will become more expensive, and this will reduce consumer demand, so it can not lead to demand-pull inflation, which makes option B wrong. An increase in interest rates is a measure of deflationary monetary policy, intended to reduce AD. Higher interest rates increase the cost of borrowing for firms, which reduces their willingness to invest; this causes a reduction in investment expenditure (**I**), shifting the AD curve leftwards, thus reducing prices. Furthermore, higher interest rates also reduce interest-sensitive consumption expenditure, and increase the amount people are willing to save, which reduces consumption expenditure (C), also causing the AD curve to shift to the left, reducing prices; option C is incorrect.

4. D
The import quotas will reduce imports and increase prices of imports. As imports are price inelastic, increase in price of imports reduces quantity of imports in lesser proportion and so Balance of Trade worsens and increase in price of imports worsens terms of trade.

5. C
The "purchasing power parity (PPP) exchange rate" represents the value of a basket of goods in the currency of one country in terms of the value of the same basket of goods in the currency of another country. The PPP exchange rate of the Indian Rupee could possibly be high because many other countries do not trade low-priced goods internationally, and the inflation in India would cause the value of a basket of goods there to be higher than the value of the same basket of goods in other countries. The market exchange rate could be comparatively lower because the high value of the commodities imported into India causes an increase in the supply of the Rupee, thereby depreciating its exchange rate.

6. D
Increase in direct taxes reduce disposable national income which reduces consumption and accordingly imports as well. Hence, it will improve balance of payments.

7. B
Devaluing currency worsens terms of trade and improves balance of trade in the long run according to Marshall Lerner conditions.

8. D
A subsidy is provided by the government and reduces the cost of production for firms, causing an increase in the supply and decrease in the price of the commodity. Previously, China would have had trouble exploiting its comparative advantage in cotton production because, despite lower unit costs, the US subsidy to American cotton growers would make it difficult for Chinese cotton growers to compete. Now that the US has removed the subsidy, Chinese cotton growers can finally exploit the benefits provided by their comparative advantage in cotton production.

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9. C
A quota on volume of garments will cause a switch to producing higher value garments by Chinese firm.

10. C
Increase in income tax reduces personal disposable income and hence leads to decrease in consumption. A decrease in interest rate encourages investment and a following depreciated exchange rate will cause rise in net exports as well.

11. B
A managed float is one in which the central bank makes some attempts to stabilize the exchange rate within a target range that it sets itself. A freely floating exchange rate is one in which the forces of demand and supply in the forex market determine an equilibrium exchange rate for the currency. The equilibrium is established at the intersection of the demand and supply curves. Since the demand curve has shifted to D_2, the new equilibrium should have been the intersection of S_1 and D_2. In the diagram, however, E_2 is not at the equilibrium, but is lower than it; this must be because the country's authorities are operating a managed float, so they maintained the exchange rate at a point lower than what the market equilibrium is. The answer, therefore, is option B.

12. D
An increase in spending on training improves productivity of workers in a country and increases Aggregate Supply of the country.

13. A
Aggregate demand (AD) is the total demand for commodities in an economy. The constituents of AD include consumption expenditure (C), desired investment expenditure (I), government exhaustive expenditure (G), and net exports (X-M). An increase in any of these components will increase AD and, consequently, cause an increase in the output of the economy. If there is an initial high level of unemployment of resources in the economy, then an increase in government expenditure will cause a far greater increase in output compared to if the initial level of unemployment was low. Furthermore, financing this government expenditure with borrowing is better because an increase in tax rates is a measure of deflationary fiscal policy intended to reduce AD, which would cause a reduction in the output of the economy.

14. D
Trade union pressures often urge businesses to increase their wage rates and hence it leads to cost push inflation. By minimizing trade union influence, demands for higher wages will decrease and it decreases cost push inflation. Hence Aggregate Supply is affected by this scenario. So it is supply side policy.

15. A
Lowered exchange rates improve balance of payment whereas lowered interest rate leads to rise in consumption and investment. Eventually, Aggregate Demand (AD) and GDP increase and hence reduces cyclical unemployment.

16. A
A "floating exchange rate" is a type of exchange rate regime which determines the exchange rate according to the demand for and supply of currency. In a recession, national output and investment expenditure in the economy are both low. To increase national output, aggregate demand (AD) must be increased. AD is the total demand for commodities in an economy. The constituents of AD include consumption expenditure (C), desired investment expenditure (I), government exhaustive expenditure (G), and net exports (X-M). An increase in any of these components will increase AD and, consequently, cause an increase in the output of the economy. A reduction in interest rates is a measure of inflationary monetary policy, and will reduce the reward for saving (and opportunity cost of consumption), causing people to save less and consume more; this will increase consumption expenditure (C). Also, a reduction in interest rates will also reduce the cost of borrowing, causing an increase in interest-sensitive consumption (C) and investment (I). Leaving the tax rates unchanged would be better for national output than increasing them, because an increase in tax rates is a measure of deflationary fiscal policy. The current account of the balance of payments includes, among other things, the inflows and outflows of cash due to incomes paid to local owners of factors of production abroad and foreign owners of domestic factors of production. Among these incomes is "interest", which is the factor income for owners of capital. Since a reduction in the domestic interest rate would cause lesser interest to be paid out as factor income to foreign owners of domestic financial assets, this would cause a lower outflow of cash from the economy. Because anything that reduces the outflow of cash from the economy will improve the current account, option A is the answer.

17. A
A decrease in domestic interest rate increases capital outflow and leads to depreciation of domestic currency. So a decrease in price of exports due to depreciation will increase the demand of exports. Decreased interest rate will also urge domestic consumers to spend more and lead to rise in consumption (C) and so increase domestic demand.

18. C
In fixed money supply system, the government is unable to finance its extra spending when it uses expansionary policy. When Public Sector Borrowing requirement is not met, this reduces the effect of fiscal policy as greater interest rate will generate crowding out effect.

19. C
An increase in oil prices decreases world supply of oil and so leads to decrease in rate of growth.

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20. A
Reflationary (Expansionary) fiscal policy means decrease in government. spending (G) and decrease in taxes (T). Monetary policy follows increase in interest and decrease in Money supply Ms and vice versa.

21. A
In freely floating exchange rate, nominal exchange rate is decided by forces of demand and supply and government does not keep foreign reserves to affect the exchange rate. So in freely floating exchange rate, a depreciation of currency will not affect foreign currency reserves.

22. C
Benefits are provided to low income earners—especially those in poverty—in order to aid them. The poverty trap refers to a situation when people end up stuck in poverty. This can happen because, as people find new sources of income, the level of benefits they receive reduces, which results in a negligible net change in income. For people to escape a poverty trap, there must be a reduction in the rate at which benefits are withdrawn as a household's income increases, because that will result in a net increase in income, allowing those in poverty to be better off than they were before.

23. B
Budget surplus is reduced when spending increases or taxation decreases or the combined effect of them. So eventually, either way it leads to rise in AD.

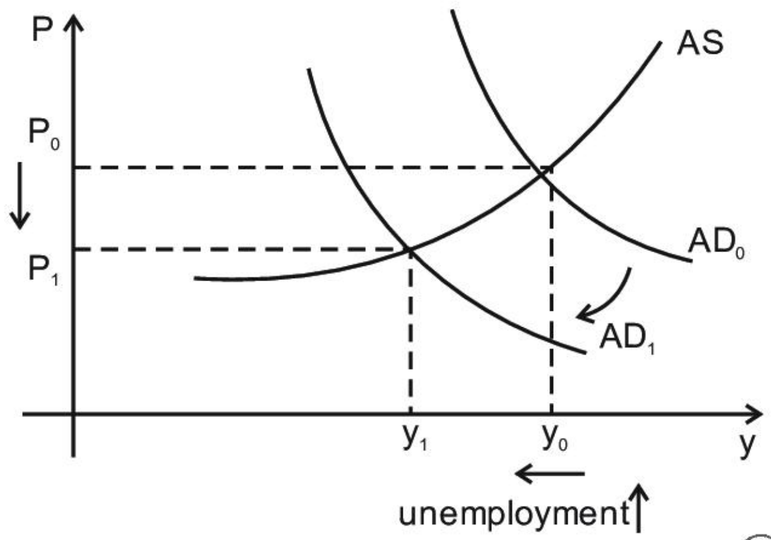
24. C
A decrease in level of taxation improves consumption and investment and lead to rise in AD and GDP. Hence it will lead to fall in level of unemployment.

25. B
An increase in foreign direct investment (FDI) increases capital inflow. FDIs serve as local import substitutes and reduce imports and visible trade balance improves. However, FDIs send back the profits to its native countries and so it worsens invisible balances.

26. B
The import quotas will reduce imports and increase prices of imports. As imports are price elastic, increases in price will lead to greater reduction in quantity of imports. So balance of trade improves but on the other hand increase in prices of imports will worsen terms of trade. So B is the answer

27. C
Deflationary gap is when, current AE is less than that at full employment. An increase in Government spending (G) increases AE and closes the gap.

28. D
Increased taxes and reduced government spending leads to fall in aggregate demand and GDP and hence unemployment increases.



29. B
Increased budget deficits force demand pull inflations and urge governments to finance it by loans leading to further problems.

30. A
Fiscal policy is less effective in floating exchange system. Using expansionary fiscal policy to reduce unemployment will decrease money supply and increase the domestic interest rate. When domestic interest rate is greater than that of foreign interest rates it will cause capital inflow to improve and eventually lead to appreciation of domestic currency.
According to Marshall Lerner conditions, Balance of payments will worsen which will eventually decrease Aggregate Demand.

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31. C
Cyclical unemployment exists when current GDP is lesser than that at full employment due to low Aggregate Demand (AD). So AD needs to be increase. According to options, increased government spending increases AD and thus, reduces cyclical unemployment

32. A
Reduction in government spending reduces demand pull inflation and urges consumers to spend less on imports. So Balance of payment improves along with decrease in inflation.

33. C
Structural unemployment occurs due to decline of certain industry. So the unemployed will have to be trained in other profession to be able to be employed in another industry

34. D
In order to reduce inflation, contractionary monetary policy will be used. So central bank will target to decrease Money Supply and increase interest rate. A rise in interest rate increases capital inflow and hence leads to rise of exchange rate.

35. D
In order to reduce demand pull inflation, Aggregate Demand needs to fall. According to option D, no import controls will encourage greater imports, worsen Balance of Payment and lead to fall in AD.

36. D
Reflationary (Expansionary) fiscal policy means increase in government spending (G) and decrease in taxes (T). Deflationary (contractionary) monetary policy follows increase in interest and decrease in Money supply M_s.

37. C
Public sector debt increases when the government budget deficit increases. Selling government bonds leads to crowding out effect and weakens the effect of expansionary fiscal policy. So it will require greater government spending and an increase in public sector debt.

38. B
Aggregate Demand (AD) consists of consumption (C), Investment (I), Government. spending (G), Net exports (X-M). In order to increase AD, there should be increase in any of the components, C,I, G or (X-M). So option B is the right choice.

39. A
The question asks for a scenario where contractionary monetary and fiscal policy will be effective. Both policies are used to reduce consumption and investment which will lead to fall in AD. Moreover in case of balance of payments(BOP) deficit, increase in taxation will reduce personal disposable incomes and force consumers to reduce imports. So BOP deficit will improve.

40. B
A fall in unemployment shows national income has increased greater people have been dragged into fiscal drag, i.e., those who were initially exempted from tax bracket. Hence direct tax revenue increases. Decrease in unemployment leads to demand-pull inflation, so increase in prices of goods and services will increase indirect tax revenue. Moreover, decrease in unemployment will make government to pay lesser unemployment benefits.

41. C
Index links saving certificates provide compensation for inflation. This provides certainty over future purchasing power.

42. A
In order to achieve full employment, either of AD or AS needs to be increased. Among options, option A will encourage people to consume more due to lesser restriction, Furthermore investors will be encouraged to invest more and hence it will lead to greater employment opportunities.

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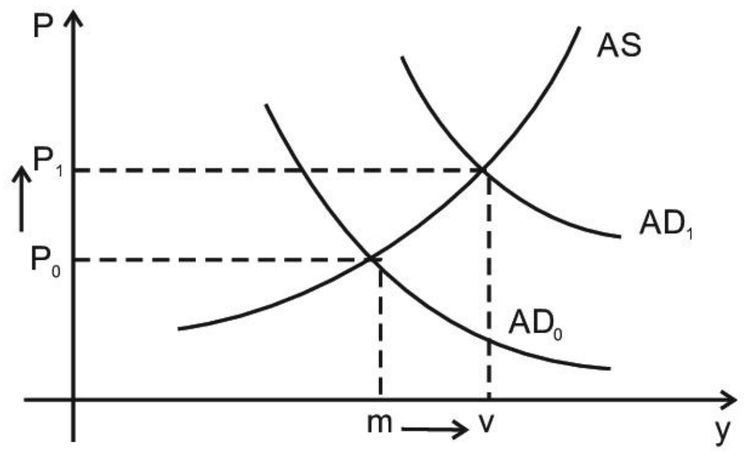
43. D

Excessive demand will lead to demand pull inflation.



In order to combat excessive demand, the government. can either use contractionary monetary or contractionary fiscal policy. Imposition of import controls will improve Balance of trade and lead to rise in Aggregate Demand. So A is not the answer. Reduction in level of interest rate increases consumption and investment and hence AD as well. Increase in social security benefit will increase AD.

An increase in direct taxation is a part of contractionary fiscal policy which will reduce consumption and hence AD as well. Therefore D is the right choice.

44. D

According to Laffer's curve, an increase in income or progressive tax initially increases tax revenue and redistribute income from rich to poor. However, after a certain level, further increase in tax rate will have a strong disincentive effect which will reduce income and consequently tax revenue. Hence there is a limit to progressive tax government can use.

45. A

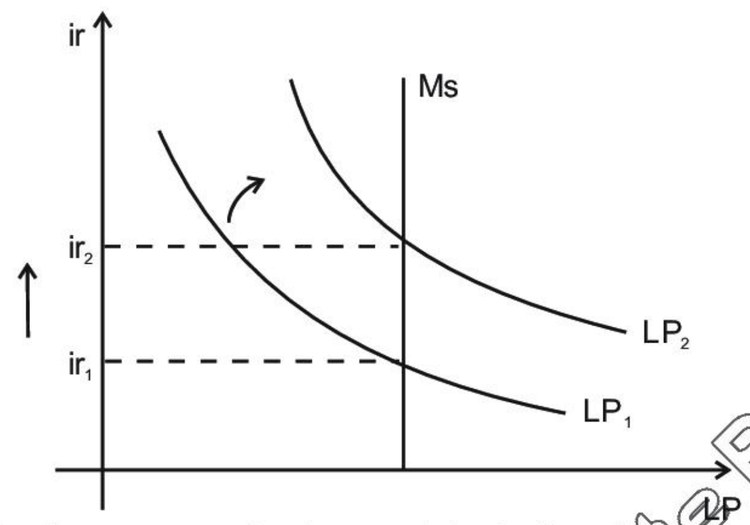
The increase in government spending will also lead to higher borrowing which will inevitably increase interest rate. The higher interest rates will reduce consumption by households and investment by firms, so overall effect is less than $10 million.

46. B

If a government's expenditure exceeds its tax revenue, it is an expansionary fiscal policy causing an increase in transactions demand for money, liquidity preference and therefore an upward pressure on interest rate. To prevent this pressure, government need to increase money supply which will be possible if there are purchases of government bonds by the country's central bank.

47. B

An increase in government spending will increase money transactions. This, is turn, will cause Liquidity preference to rise and increase interest rate when money supply remains unchanged.



Although government spending should raise aggregate demand, but when the interest rate will rise, this will decrease consumption and investment and generate crowding out effect. This will render an increase in government, spending ineffective as aggregate demand will decrease.

48. B

Government budget will be balanced if government expenditure is equal to tax revenue (G=T). In slump, tax revenue falls due to fall in income and expenditure but government expenditure on unemployment benefits increases. Hence to keep budget balanced, government should raise taxes in a slump and lower taxes in a boom.

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Unit 18 Employment and unemployment

18.1 Methods of measuring unemployment

1. **M/J 16/P31/Q23, O/N 12/P31/Q25, M/J 06/P3/Q27**
Which type of unemployment is associated with a deficiency in aggregate demand?
A cyclical **B** frictional **C** structural **D** voluntary

2. **M/J 16/P32/Q23**
Which type of unemployment occurs when aggregate demand is deficient?
A cyclical unemployment
B regional unemployment
C seasonal unemployment
D structural unemployment

3. **M/J 16/P33/Q23**
What is a cause of seasonal unemployment?
A a general decrease in the demand for goods and services
B a lack of necessary skills in the workforce
C a temporary change in the pattern of consumers' expenditure
D an unwillingness of workers to move to other parts of the country where there is work

4. **O/N 14/P14/Q30**
If the unemployment that exists in a country is judged to be mainly structural, which is the most effective policy the government could implement?
A increase subsidies for training
B increase the money supply
C reduce tax rates
D raise interest rates

5. **O/N 13/P32/Q23**
A country experiences cyclical unemployment due to a decrease in domestic spending.
If the government takes no action in response, what will be a likely consequence?
A an increase in the current account deficit on the balance of payments
B an increase in the government's budget deficit
C an increase in the rate of inflation
D an increase in the volume of investment

6. **M/J 17/P32/Q19, M/J 13/P32/Q24**
Which policy is specifically designed to reduce the level of structural unemployment?
A an increase in the level of state benefits paid to the unemployed
B a reduction in interest rates
C a reduction in the level of direct taxation
D the provision of retraining schemes

7. **M/J 12/P31/Q27**
A government's priority is to reduce the natural rate of unemployment (NAIRU).
Which policy would be most likely to help it achieve this objective?
A an increase in interest rates
B an increase in rates of unemployment benefit
C the introduction of minimum wage rates
D the introduction of subsidised travel for unemployed workers to search for jobs

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8. O/N 12/P32/Q24

What is most likely to lead to an increase in the natural rate of unemployment?

A more rapid technological and structural change
B a widening in regional wage differentials
C a narrowing in regional house price differentials
D a decrease in trade union membership

9. O/N 12/P32/Q25, O/N 03/P32/Q27

Which type of unemployment arose from the worldwide decline in the demand for electronic goods beginning in the summer of 2001?

A seasonal **B** voluntary **C** frictional **D** structural

10. O/N 12/P33/Q29

What is the most effective policy a government could introduce to reduce frictional unemployment?

A cut welfare spending on benefits
B improve information about job vacancies
C reduce tax rates
D raise interest rates

11. M/J 07/P3/Q27

What is most likely to lead to an increase in the natural rate of unemployment?

A more rapid technological change
B a widening in inter-regional wage differentials
C a narrowing in inter-regional house price differentials
D a decrease in the number of workers who are members of trade unions

12. O/N 05/P3/Q25

All else remaining unchanged, which measure would be most likely to increase the natural rate of unemployment?

A an increase in expenditure on education and training
B an increase in the rate of unemployment benefits
C a reduction in the government's budget deficit
D a reduction in the general level of interest rates

13. M/J 03/P3/Q27

Workers in poor countries are often less productive than workers using the same technology in rich countries. What would be most likely to remedy this situation?

A an increase in the saving ratio in poor countries
B increased investment in education in poor countries
C increased freedom of migration from poor countries to rich countries
D the removal of trade barriers imposed by rich countries on imports from poor countries

14. M/J 98/P3

A country experiences labour shortages in some regions and high unemployment in others. What would help to remove this difference in unemployment rates between regions?

A an increase in government payments to the unemployed.
B a reduction in income tax and an increase in government spending.
C the introduction of local pay agreements.
D the introduction of rent controls on private sector accommodation.

15. M/J 94/P3/Q39

Which of the following would encourage industrial expansion in a region of high unemployment?

A a rationing system for building development in that region.
B a reduction in tax allowances on investment.
C a requirement that only local labour will be employed.
D an end to nationally negotiated wage rates.

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Answers Section

1. A
Cyclical unemployment is also known as demand deficient unemployment and is associated with a deficiency in aggregate demand.

2. A
Cyclical unemployment is also known as demand deficient unemployment and is associated with a deficiency in aggregate demand.

3. C
A temporary change in the pattern of consumers' expenditure like tourism causes seasonal unemployment.

4. A
Structural unemployment is caused by the change in structure of economy and most effective policy the government could implement is to increase subsidies for training.

5. B
It is unclear how lower spending will worsen the current account deficit since there is no information on spending on imports or local goods. With higher cyclical unemployment, tax receipts will fall due to lower spending and less people employed while government spending on welfare schemes such as unemployment benefits will rise, thus causing a budget deficit. So option B is correct. A fall in domestic spending means a leftward shift in AD which will reduce the overall price level. The lower spending will reduce investors' confidence in the economy and thus reduce volume of investment rather than increasing it.

6. D
Structural unemployment is unemployment due to a skills mismatch between the skills of the workers and the needs of firms. So any attempt to make better workers better qualified to work at firms will help in reducing this type of unemployment. Options A, B and C will not make improve their skills according to the market's requirements. Retraining schemes will help workers gain more skills to make them more employable, thus reducing structural unemployment.

7. D

8. A
A more rapid technological and structural change means an increase in skills mismatch in the economy. Since workers will have a different set of skills as compared to what employers want, this will increase natural rate of unemployment. A widening in regional wage differentials may cause a spike in frictional unemployment or other types, so this will also increase natural rate of unemployment. A decrease in trade union membership means wages will become more flexible, and therefore in times of recession wages of workers can go down instead of the firm firing workers. So option D is correct.

9. D
Seasonal unemployment depend firms whose income depends on climate conditions such as ski resorts during winters and beaches during sunny days, which is why option A is wrong. A decline in demand for electronic goods will not cause more people to voluntarily quit their jobs, so option B is wrong. Frictional unemployment is the time between when a worker is searching for another job or transitioning to one, so this also unlikely to be affected. Structural unemployment which refers to skills mismatch between needs of the economy and skills of workers will increase. This is because workers who specialize in manufacturing electronic goods will find it difficult to get employed elsewhere.

10. B
Frictional unemployment is primarily caused by the lack of information and immobility of labour. Hence improving information about job vacancies is the most effective policy to reduce frictional unemployment.

11. A
More rapid technological change will cause structural unemployment and hence increase NAIRU.

12. B
A, C, and D affect cyclical un-employment. Increase in rate of un-employment benefit will de-motivate workers to work and urge them to avail unemployment benefit instead.

13. B
Increased investment in education of workers in poor countries trains them and improves their information about new technology. This leads to a rise in productivity.

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14. C
Regional unemployment can only be reduced by developing infrastructure in the poor regions which will provide employment to local labour.

15. D
Regional unemployment can only be reduced by developing infrastructure in the poor regions which will provide employment to local labour.

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18.2 Effects of unemployment

1. M/J 15/P31/Q25
What is the best measure of the economic cost of an increase in unemployment?

A the additional social security benefits paid plus the loss of tax revenue from newly unemployed workers

B the loss of potential exports

C the money value of the additional social security benefits paid

D the output the unemployed workers could have produced

2. O/N 15/P33/Q25
A fall in aggregate demand results in a rise in the number of full-time workers who are unemployed. What is the most likely direct consequence?

A a deterioration in the country's balance of trade

B an influx of workers from abroad

C a rise in the government's budget deficit

D a rise in the rate of inflation

3. O/N 14/P33/Q27
What is the opportunity cost to society of an increase in unemployment?

A the increase in taxes to pay for unemployment benefits

B the loss in national output

C the reduction in the disposable income of those who lose their jobs

D the resulting increase in the government's fiscal deficit

4. O/N 13/P32/Q24, M/J 16/P33/Q24
What is a possible combination of a cost and a benefit of rising levels of unemployment?

	cost	benefit
A	a deterioration in human capital	an increase in capital expenditure
B	an increase in import expenditure	a decrease in government tax revenue
C	an increase in the rate of economic growth	a more responsive workforce
D	an irretrievable loss of output	a reduction in inflationary pressure

5. O/N 13/P33/Q25
What will result from rising unemployment in an economy?

A a reduction in the government's budget deficit

B inflationary pressure will be reduced

C potential output will fall

D the economy's production possibility curve will move inwards

6. O/N 12/P33/Q28
What is the best measure of the economic cost of an increase in unemployment?

A the loss of potential exports

B the money value of the additional social security benefits paid

C the goods and services the unemployed workers could have produced

D the additional social security benefits paid plus the loss of tax revenue from newly redundant

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7. M/J 90,M/J 93/P3

Which of the following is the best measure of the true economic cost of an increase in unemployment?

A the loss of potential exports.

B the goods and services the unemployed workers could have produced.

C the money value of the additional security benefits paid.

D the money value of the additional security benefits paid plus the loss of tax revenue from newly redundant workers.

8. O/N 11/P33/Q21, O/N 11/P31/Q22

What is a likely consequence of an increase in cyclical unemployment?

A a deficit on the current account of the balance of payments

B a deterioration in the fiscal balance of the government

C an increased rate of inflation

D an increase in immigration

9. M/J 10/P32/Q27

Which is most likely to result in an increase in the natural rate of unemployment?

A a decrease in government expenditure on goods and services

B a decrease in the level of government payments to the unemployed

C an increase in trade union membership

D an increase in interest rates

10. O/N 08/P3/Q22, M/J 13/P31/Q23

Which pattern of labour market data is likely to indicate an increase in cyclical unemployment?

	changes in	
	compulsory redundancies	voluntary resignations
A	decrease	increase
B	increase	increase
C	decrease	increase
D	increase	decrease

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Answers Section

1. D
   True economic cost of an increase in unemployment is the output the unemployed workers could have produced.
2. C
   With the increase in unemployment, government have to spend more on unemployment benefits leading to budget deficit.
3. B
   Employed could have produced something which is now lost because they are unemployed now. Hence opportunity cost of unemployment is loss in national output.
4. D
   Option A is incorrect because unemployment does not necessarily lead to more capital expenditure while a fall in the government tax revenue mentioned in option B is not a benefit. In option C, unless a formal strategic plan is designed it is very difficult for an economy to increase its rate of economic growth with falling employment. So only option D is correct which states how unemployment causes loss of output but at the same time at times of high inflation a rise in unemployment may help to dampen the inflation rate.
5. B
   Employed could have produced something which is now lost because they are unemployed now. Hence opportunity cost of unemployment is loss in potential output.
6. C
   Employed could have produced something which is now lost because they are unemployed now. Hence opportunity cost of unemployment is loss in potential output.
7. B
   The true measure of economic cost of unemployment is the wastage of goods and services which could have been produced.
8. B
   An increase in cyclical unemployment leads to more government spending on unemployment benefits hence causing a deterioration in the fiscal or budget balance of the government.
9. C
   An increase in trade union membership increases classical un-employment and hence increase NAIRU.
10. D
    In cyclical un-employment, decrease in aggregate demand and GDP forces firms to make redundancies. Increase in redundancies makes employment opportunities more tough to hold on to and so voluntary resignations decrease.

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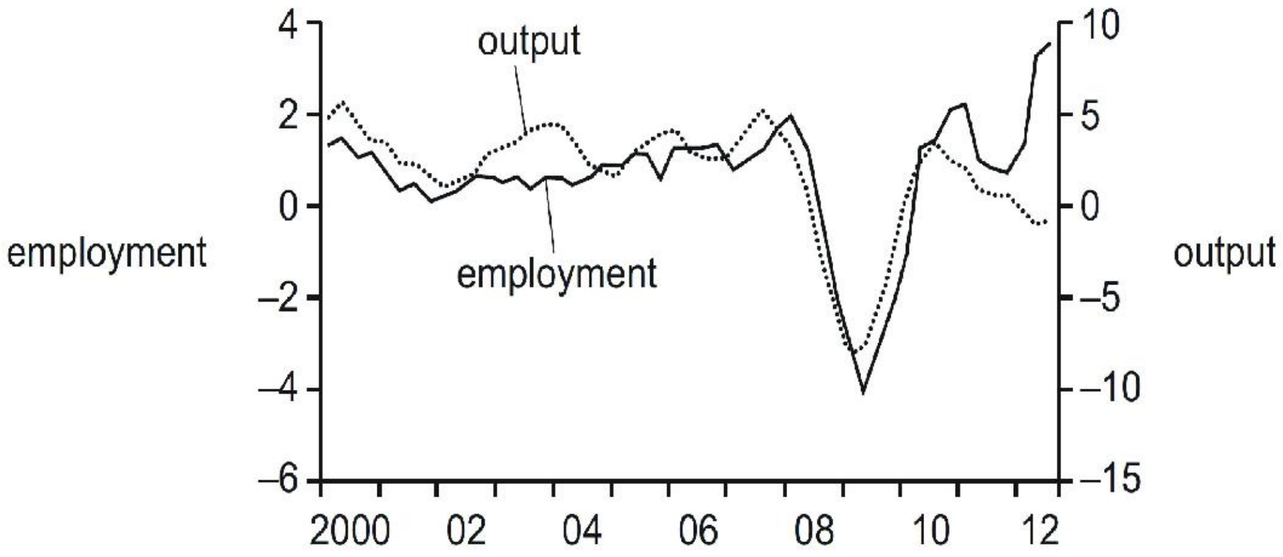
18.3 Labour force and labour productivity

1. M/J 16/P31/Q24, M/J 16/P32/Q24

The diagram shows the annual percentage (%) change in employment and output in the UK private sector between 2000 and 2012.



In which year did labour productivity decrease the most?

A 2001 **B** 2008 **C** 2011 **D** 2012

2. M/J 16/P31/Q29

Workers in poor countries are often less productive than workers using the same technology in rich countries.
What would be most likely to remedy this situation?

A an increase in the saving ratio in poor countries

B increased freedom of migration from poor countries to rich countries

C increased investment in education in poor countries

D the removal of trade barriers imposed by rich countries on imports from poor countries

3. O/N 11/P32/Q24

A developing country experiences a rapid growth in labour productivity.
What is likely to result from this?

A an appreciation of the country's nominal exchange rate

B an increase in the country's balance of trade deficit

C an increase in the country's inflation rate

D an increase in the country's relative labour costs

4. O/N 06/P3/Q27

In an economy the proportion of the working age population in employment increases from 70 % to 80 %.What is likely to be the effect on labour productivity and on GDP per head?

	labour productivity	GDP per head
A	increase	increase
B	increase	decrease
C	decrease	increase
D	decrease	decrease

5. O/N 05,M/J 14,M/J 08/P3/Q23

What is likely to increased GDP per worker in a developing economy?

A a decrease in the numbers engaged in subsistence agriculture.

B a decrease in the numbers engaged in manufacturing.

C an increase in the employment rate.

D an increase in the population of working age.

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6. M/J 05,O/N 08/P3/24

A developing economy experiences a rapid growth in labour productivity.
What is likely to result from this?

A an increase in the country's balance of trade deficit

B an increase in the country's relative labour costs

C a depreciation of the country's currency

D an increase in real income per head

7. M/J 14/P31/Q25

The graph shows the changes (expressed as an index) in employment and in GDP in the United Kingdom between 2008 and 2012.

What can be concluded from the graph?

A The number in full-time jobs as a percentage of total employment fell over the period.

B The total number in employment increased over the period.

C There was a fall in the number unemployed over the period.

D There was an increase in GDP per worker over the period.

8. M/J 13/P31/Q24

What would an economist include when using social cost-benefit analysis to assess policies to reduce the level of unemployment?

	changes in crime rates	changes in mental health	changes in work skills
A	no	no	no
B	no	no	yes
C	yes	no	yes
D	yes	yes	yes

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Answers Section

1. D
Labour productivity is defined output per unit of labour employed. As long as annual percentage (%) change in employment is positive, total output increases whereas when it is negative total output decreases. In 2012, employment is increasing (positive percentage change employment) but output is decreasing (negative percentage change employment).

2. C
Increased investment in education in poor countries will increase the productivity of workers in poor countries.

3. A
A rapid growth in labor productivity may mean that the country will become more competitive in the international market because workers in the country can produce more without taking a significantly higher pay. So that would lead to an increase in exports which will lead to appreciation of the country's nominal exchange rate. A higher growth in labor productivity will not lead to either higher inflation or an increase in the country's labor costs.

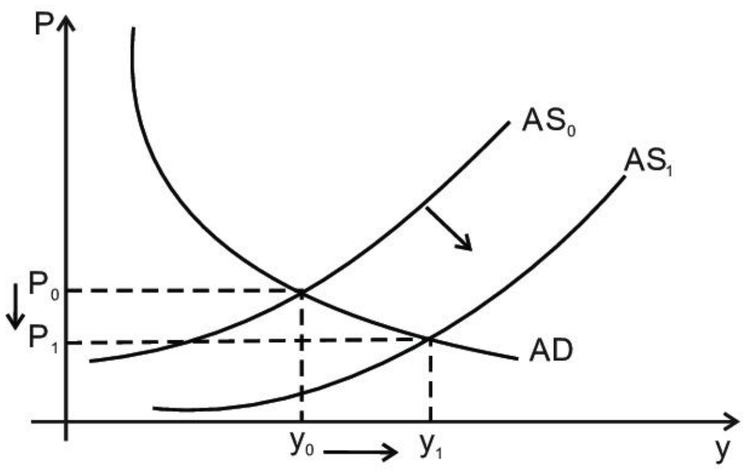
4. C
Increase in working age population will decrease productivity because.

$$\text{Productivity} = \frac{\text{Total Production}}{\text{Total Labour}}$$

However, increase in working population will produce goods and services and increase the GDP of the country. The population remains same because the new working age people were considered dependents before. So the overall population will not be affected. Hence GDP per head rises.

5. A
Developing economies rely on primary sector. This sector employs a huge percentage of workers. So increased GDP per worker is likely to happen when the working population of subsistence farming decreases. Subsistence farming (primary sector) is less productive. So when workers switch from farming to manufacturing or tertiary sector, there will be an increase in productivity.

6. D
Rise in labour productivity increases the aggregate supply of the country. This will lead to rise in national incomes and GDP of the country. With constant population, there will be increase in real income per head.



7. A
As the index of temporary and full time workers decreased over the period while index of temporary and part time workers increased which means The number in full-time jobs as a percentage of total employment fell over the period.

8. D
A decrease in unemployment should decrease crime rate, improve health care and increase skills of labour force, hence D is correct answer.

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Unit 19 Macroeconomic objectives and conflicts

19.1 Short run phillips curve

1. M/J 16/P31/Q28

The table gives an economy's unemployment rate and inflation rate for a five-year period.

year	unemployment rate %	inflation rate %
2010	7.6	2.6
2011	6.2	1.6
2012	5.8	1.8
2013	5.9	2.0
2014	5.8	2.0

What change between consecutive years was in agreement with the Phillips curve analysis?

A 2010 – 2011 **B** 2011 – 2012 **C** 2012 – 2013 **D** 2013 – 2014

2. M/J 16/P32/Q28

What will be most likely to rise if unemployment is increasing in an economy?

A What will be most likely to rise if unemployment is increasing in an economy?

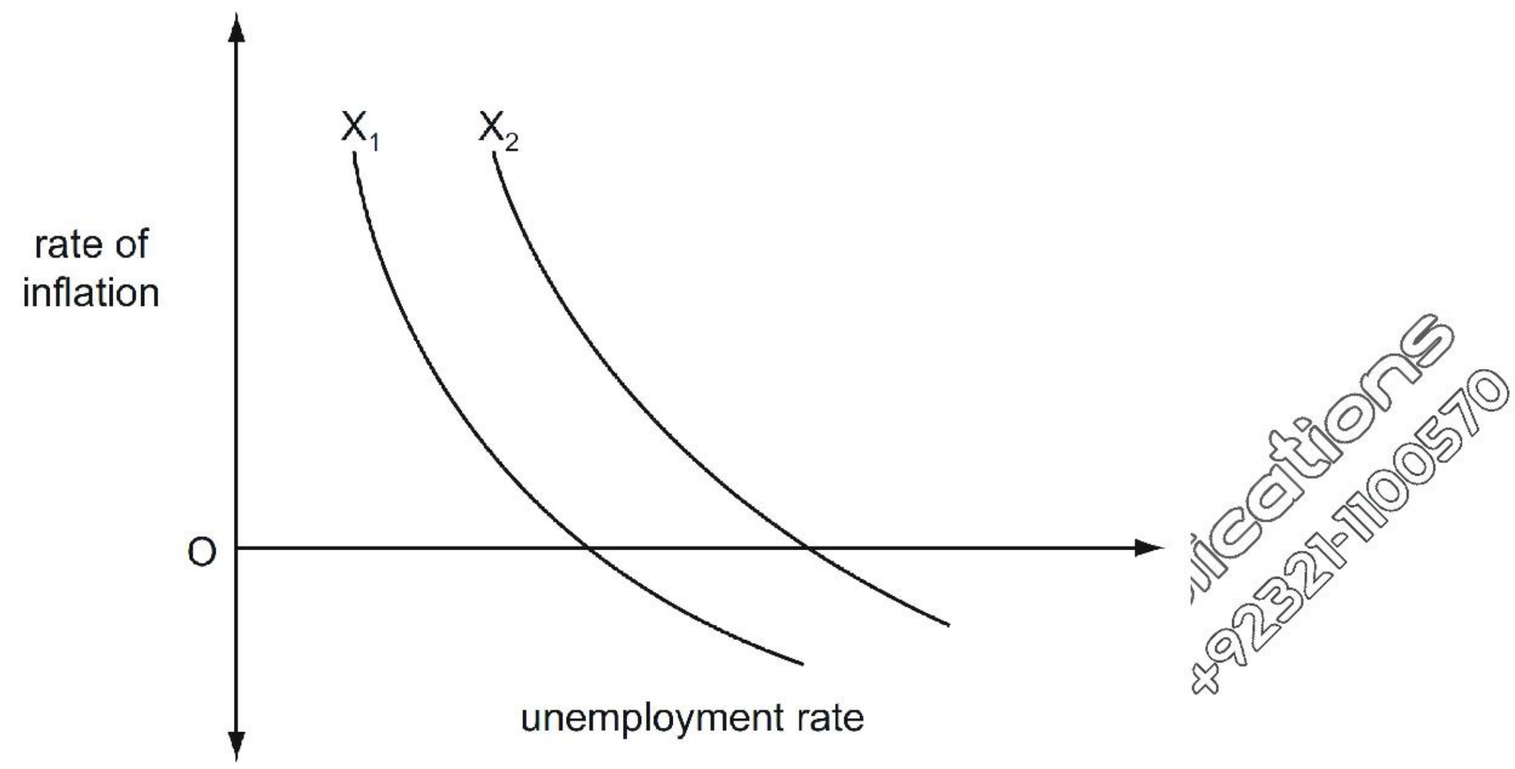
B the living standards of all workers

C the nominal money wage rate of employed workers

D the tax burden on employed workers

3. O/N 15/P33/Q26

In the diagram, the curve X_1 shows an economy's initial trade-off between inflation and unemployment.



What could cause the curve to shift to X_2 ?

A an increase in the natural rate of unemployment

B a decrease in the money supply

C the expectation of a decrease in the inflation rate

D an increase in the rate of interest

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4. M/J 15/P33/Q29

The table gives details of the inflation and unemployment rates for different countries in 2008 and 2011.

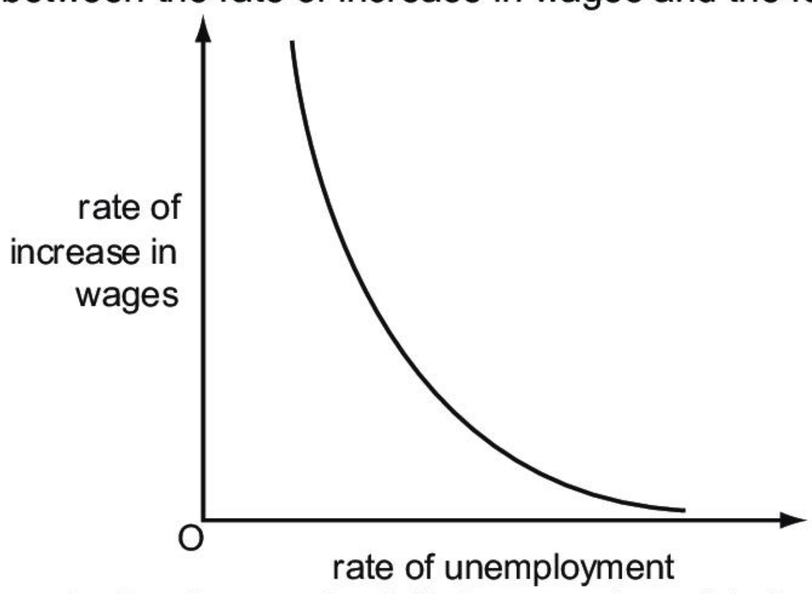
country	inflation rate (% per annum)		unemployment rate (% of workforce)	
	2008	2011	2008	2011
Canada	2.38	2.89	6.15	7.47
France	3.16	2.29	7.81	9.68
Germany	2.75	2.48	7.60	5.98
Japan	1.37	–0.28	3.99	4.55

Which country or countries experienced a trade-off between their inflation and unemployment rates?

A Canada and Germany
B Canada only
C France and Japan
D France only

5. O/N 13/P31/Q25

The diagram shows the relationship between the rate of increase in wages and the rate of unemployment.

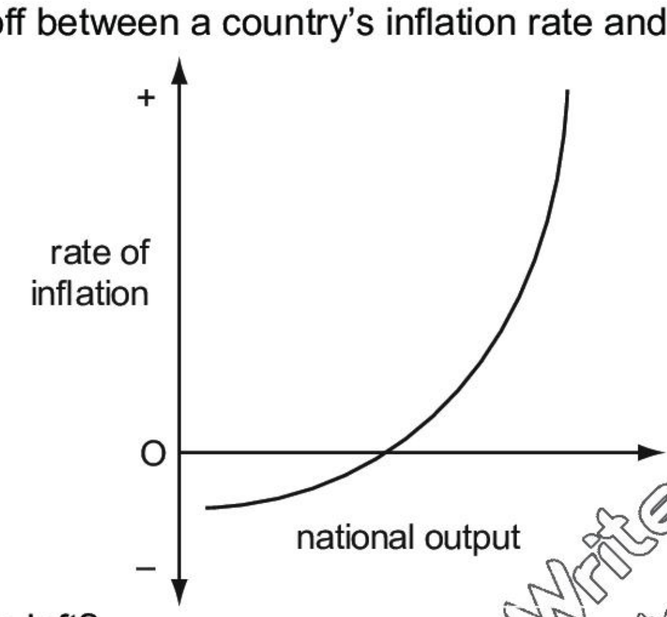


What would be likely to cause the curve in the diagram to shift downwards and to the left?

A an increase in regional differences in unemployment rates
B an increase in the proportion of the workforce belonging to trade unions
C an increase in the unemployment rate
D the expectation of a lower rate of inflation

6. M/J 13/P31/Q25

The diagram shows the short-run trade-off between a country's inflation rate and its national



What could cause the curve to shift to the left?

A an increase in the money supply
B an increase in labour productivity
C an increase in the expected future rate of inflation
D an increase in the budget deficit

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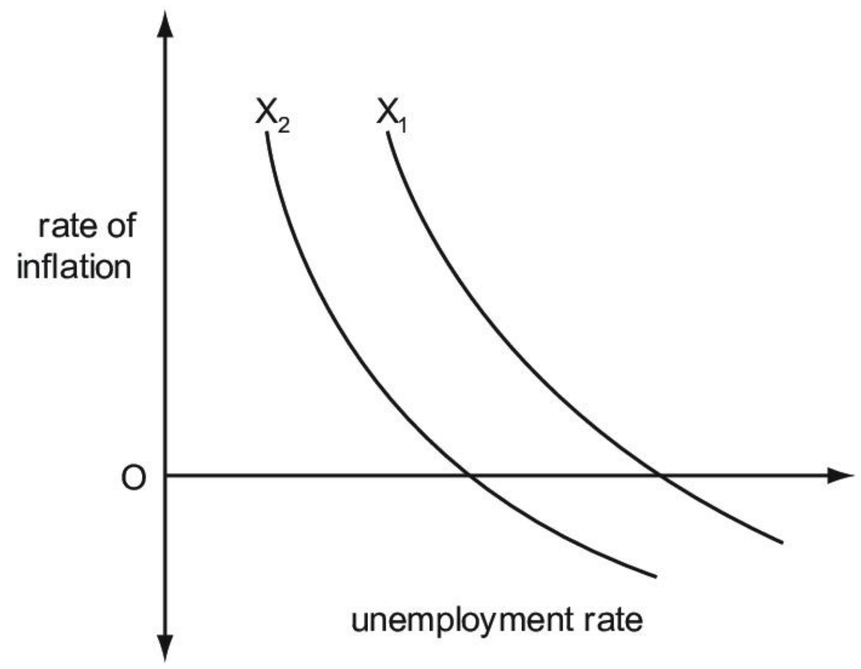
7. O/N 13/P33/Q29

In the diagram, the curve X_1 shows an economy's initial trade-off between inflation and unemployment.

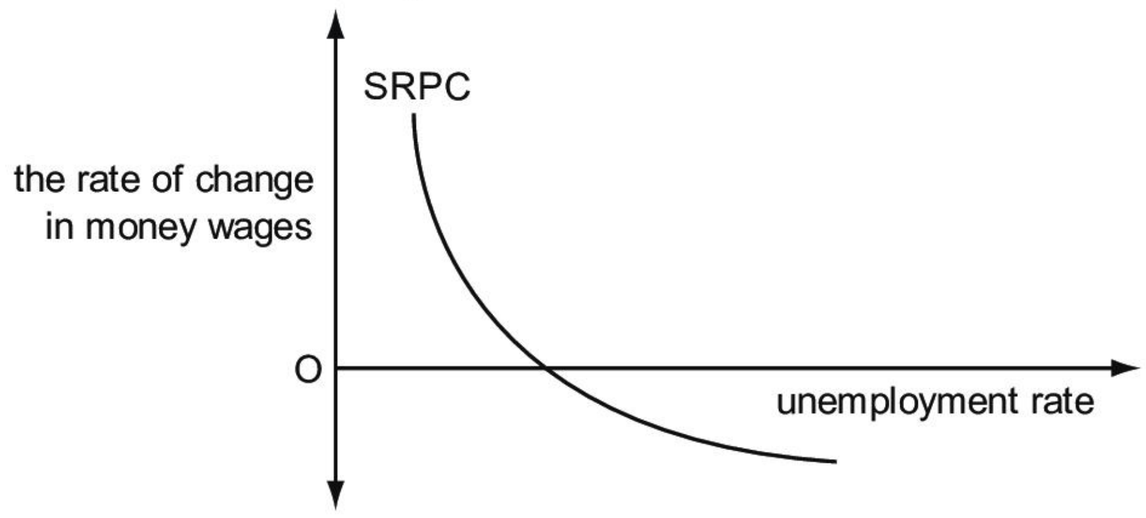


What could cause the curve to shift to X_2?

A a decrease in the money supply
B a decrease in the natural rate of unemployment
C an increase in the rate of interest
D the expectation of an increase in the inflation rate

8. O/N 11/P32/Q26

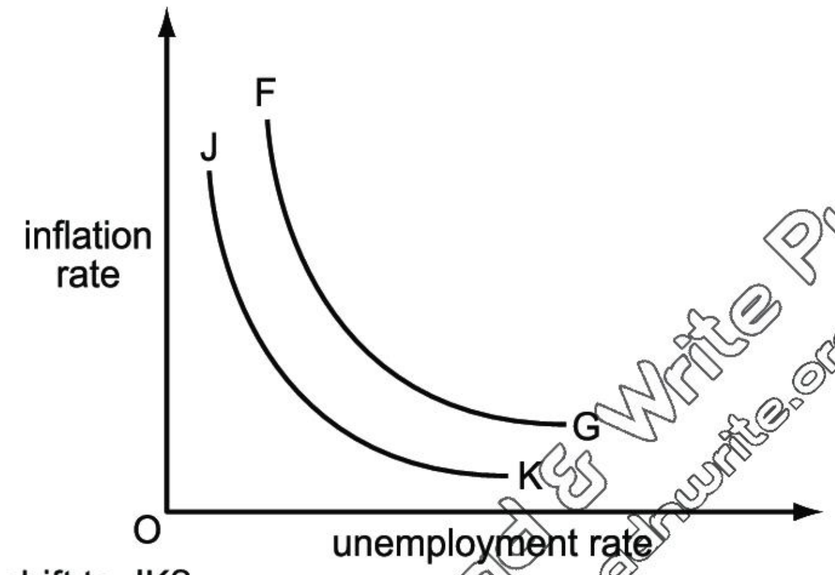
The diagram shows an economy's short-run Phillips curve (SRPC).
What is assumed to remain constant when drawing this curve?



A the average price level
B the exchange rate
C the expected rate of inflation
D the money supply

9. M/J 11/P32/Q23, M/J 15/P31/Q24

The diagram shows the relationship between the rate of inflation and the rate of unemployment.



What would cause the curve FG to shift to JK?

A a lower exchange rate
B a lower expected rate of inflation
C an increase in government expenditure
D a rise in the level of employment

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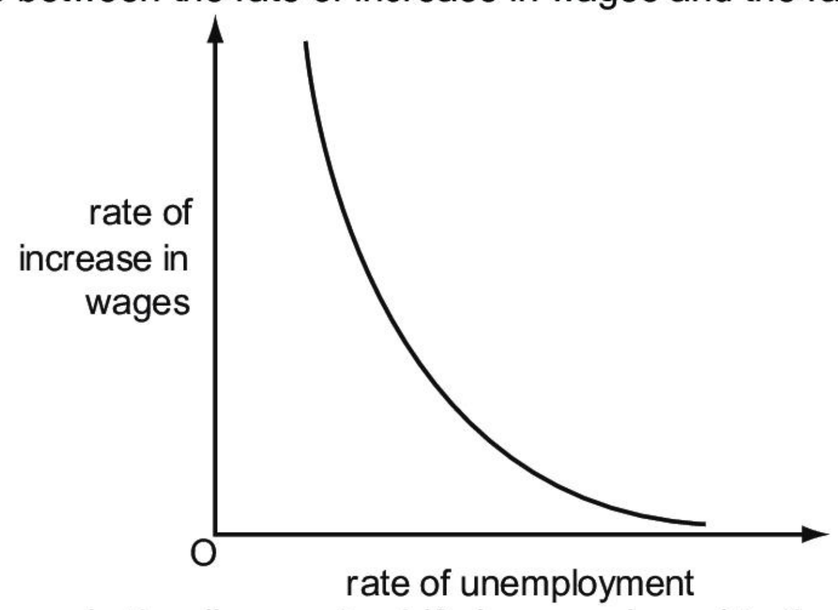
10. M/J 10/P32/Q25

The diagram shows the relationship between the rate of increase in wages and the rate of unemployment.

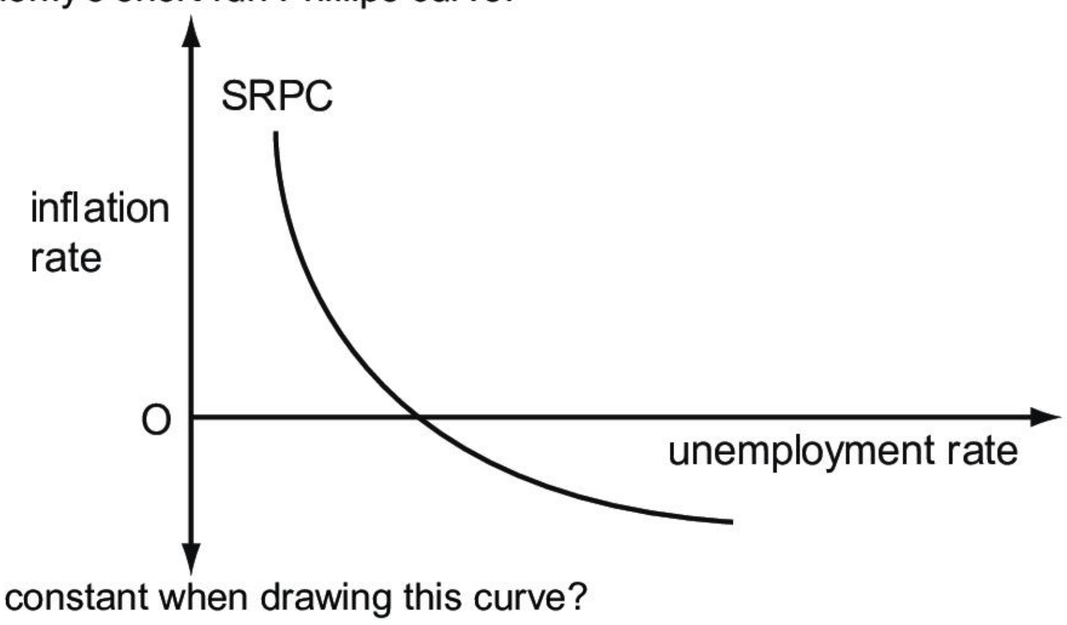


What would be likely to cause the curve in the diagram to shift downwards and to the left?

A a reduction in regional differences in unemployment rates
B an increase in the proportion of the workforce belonging to trade unions
C an increase in the unemployment rate
D the expectation of a higher rate of inflation

11. O/N 05/P3/Q26

The diagram shows an economy's short-run Phillips curve.

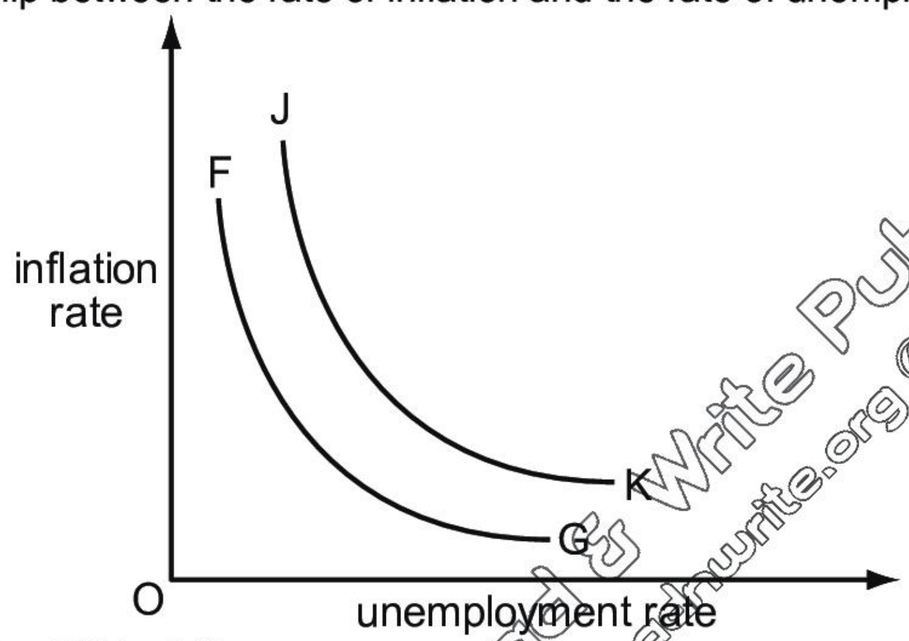


What is assumed to remain constant when drawing this curve?

A the average price level
B the money supply
C the exchange rate
D the natural rate of unemployment

12. O/N 04,M/J 08/P3/Q27

The diagram shows the relationship between the rate of inflation and the rate of unemployment.



What would cause the curve FG to shift to JK?

A a decrease in government expenditure
B a fall in the level of employment
C an increase in the rate of change of wages
D the expectation of an increase in inflation

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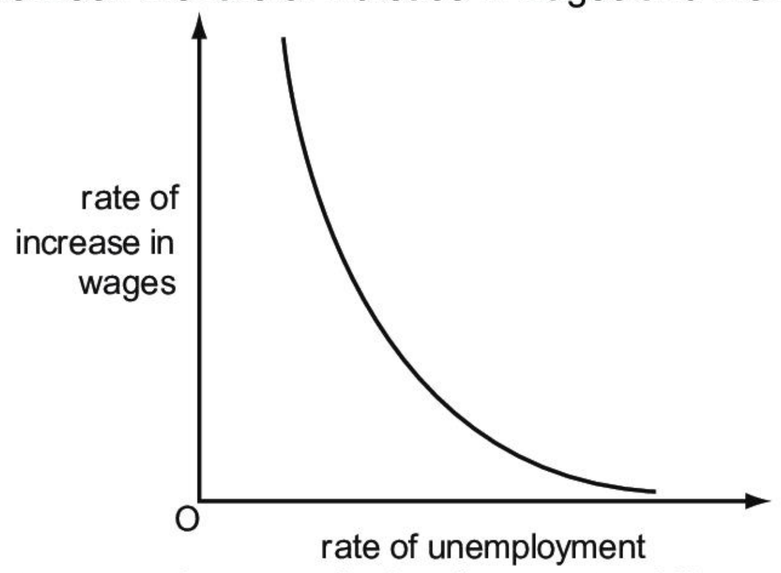
13. O/N 95,O/N 02,O/N 07,M/J 10/P32/Q28

The diagram shows the relationship between the rate of increase in wages and the rate of unemployment.



Which of the following would be likely to cause the curve in the diagram to shift upwards and to the right?

A a reduction in regional differences in unemployment rates

B a reduction in the proportion of the workforce belonging to trade unions

C an increase in the unemployment rate

D the expectation of a higher rate of inflation

14. M/J 96/P3

If a government's priority is to reduce the natural rate of unemployment (NAIRU), which measure would be inappropriate?

A a reduction in interest rates.

B a reduction in rates of unemployment benefits.

C the abolition of state-imposed minimum wage rates.

D the introduction of travel allowances for unemployed workers to search for jobs.

15. M/J 94/P3/Q23

The Phillips Curve is a relationship between

A the level of unemployment and the rate of growth of output.

B the money supply and the level of interest rates.

C the rates of inflation and the level of unemployment.

D the rate of inflation and the money supply.

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Answers Section

1. B
Phillips curve shows inverse relationship between inflation rate and rate of unemployment. This is in agreement between 2011-2012, hence B is correct answer.

2. D
An increase in unemployment will lead to more government spending on unemployment benefits which will be financed by greater tax,hence leading to greater tax burden on employed workers.

3. A
Demand pull inflation and cyclical unemployment are endogenous factors of short run phillips curve (SRPC) and their changes will create a movement along SRPC. However, cost push inflation, natural rate of unemployment (NAIRU) and changes in anticipation of inflation, are exogenous factors of SRPC and cause in shift of the curve. Hence, an increase in the natural rate of unemployment will shift SRPC outwards.

4. C
In France inflation rate falls from 3.16 to 2.29% but unemployment increases from 7.81 to 9.68%. In Japan inflation rate falls from 1.37 to -0.28% and unemployment rises from 3.99 to 4.55%. Hence only France and Japan will have a trade off between inflation rate and rate of unemployment.

5. D
Demand pull inflation and cyclical unemployment are endogenous factors of short run phillips curve (SRPC) and their changes will create a movement along SRPC. However, cost push inflation, natural rate of unemployment (NAIRU) and changes in anticipation of inflation, are exogenous factors of SRPC and cause in shift of the curve. Hence, the expectation of a lower rate of inflation will shift SRPC leftwards.

6. C
Economies aim for lower inflation but higher output but they will face a trade-off according to above diagram. An increase in the money supply and budget deficit will raise aggregate demand and therefore increases output as well as demand pull inflation and therefore will create a movement along the same curve rather than shift. An increase in labour productivity will raise aggregate supply causing inflation to fall but output to rise and therefore a rightward shift in the above curve. However, an increase in the expected future rate of inflation will lead to cost push inflation causing higher inflation and lower national output, hence shifting the curve to left. Therefore C is the correct answer.

7. B
Demand pull inflation and cyclical unemployment are endogenous factors of short run phillips curve (SRPC) and their changes will create a movement along SRPC. However, cost push inflation, natural rate of unemployment (NAIRU) and changes in anticipation of inflation, are exogenous factors of SRPC and cause in shift of the curve. Hence, a decrease in the natural rate of unemployment will shift SRPC leftwards.

8. C
Demand pull inflation and cyclical unemployment are endogenous factors of short run phillips curve (SRPC) and their changes will create a movement along SRPC and therefore will be assured to vary. However, cost push inflation, natural rate of unemployment (NAIRU) and changes in anticipation of inflation, are exogenous factors of SRPC and cause in shift of the curve. Hence, expected rate of inflation will be assumed constant when drawing this curve.

9. B
Demand pull inflation and cyclical unemployment are endogenous factors of short run phillips curve (SRPC) and their changes will create a movement along SRPC, However, cost push inflation, natural rate of unemployment (NAIRU) and changes in anticipation of inflation, are exogenous factors of SRPC and cause in shift of the curve. Hence, a lower expected rate of inflation will shift SRPC leftwards.

10. A
Demand pull inflation and cyclical unemployment are endogenous factors of short run phillips curve (SRPC) and their changes will create a movement along SRPC, However, cost push inflation, natural rate of unemployment (NAIRU) and changes in anticipation of inflation, are exogenous factors of SRPC and cause in shift of the curve. Hence, a reduction in regional unemployment will decrease NAIRU and will shift SRPC leftwards.

11. D
The economic theory assumes that all voluntary un-employments are constant and cyclical unemployment only changes with change are price level.

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12. D

Demand pull inflation and cyclical unemployment are endogenous factors of short run phillips curve (SRPC) and their changes will create a movement along SRPC, However, cost push inflation, natural rate of unemployment (NAIRU) and changes in anticipation of inflation, are exogenous factors of SRPC and cause in shift of the curve. Hence, the expectation of a higher rate of inflation is an exogenous factor and will shift SRPC outwards.

13. D

Demand pull inflation and cyclical unemployment are endogenous factors of short run phillips curve (SRPC) and their changes will create a movement along SRPC, However, cost push inflation, natural rate of unemployment (NAIRU) and changes in anticipation of inflation, are exogenous factors of SRPC and cause in shift of the curve. Hence, the expectation of a higher rate of inflation is an exogenous factor and will shift SRPC outwards.

14. A

An reduction in interest rate reduces cyclical unemployment only. NAIRU can be reduced by decreasing frictional, seasonal, structural and regional unemployment only.

15. C

By definition, the Phillips Curve shows a relationship between the rates of inflation and the rate of unemployment.

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19.2 Government macroeconomic aims

1. M/J 16/P33/Q30
What is the main objective of supply-side policies?

A to bring a country's potential output up to the level of its actual output
B to ensure a budget surplus
C to ensure that the composition of output matches the pattern of demand
D to increase potential output by increasing efficiency

2. M/J 16/P33/Q28
What is the aim of stabilisation policy?

A to keep the exchange rate stable
B to keep the price level stable
C to reduce fluctuations in interest rates
D to reduce fluctuations in national output

3. O/N 15/P31/Q30
The government decides to raise the rate of Value Added Tax (General Sales Tax).
What does this suggest is the government's main macroeconomic objective?

A to reduce the budget deficit
B to reduce the inequality of income distribution
C to reduce the level of unemployment
D to reduce the rate of inflation

4. O/N 13/P32/Q29
A government aims to achieve steady and stable growth, in line with the economy's long-run increase in productivity.
If this objective is achieved, how is this likely to affect average living standards and the level of unemployment?

	average living standards	level of unemployment
A	constant	falling
B	falling	unchanged
C	rising	rising
D	rising	unchanged

5. M/J 13/P32/Q28
What is the main objective of supply side policies?

A to bring a country's potential output up to the level of its actual output
B to ensure a budget surplus
C to ensure that the composition of output matches the pattern of demand
D to increase potential output by increasing efficiency

6. M/J 17/P31/Q30, O/N 11/P32/Q27
The economy of a country is simultaneously experiencing a balance of payments deficit, a budget deficit, demand-pull inflation and unemployment. The government decides to cut personal income taxes.
What does this suggest is its main macroeconomic objective?

A to improve the balance of payments position
B to reduce the budget deficit
C to reduce the level of unemployment
D to reduce the rate of inflation

7. M/J 91/P3
Which of the following would not normally be regarded as an objective of taxation policy?

A to rise revenue for the government.
B to influence the allocation of resources.
C to influence the distribution of real income.
D to influence the investment decisions of public owned enterprises.

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8. O/N 11/P32/Q13

What would economists agree should be the aim of any health care system?

A to meet all the health care demands of the population

B to provide every patient with the latest and best available treatment

C to provide free medical treatment

D to secure the maximum health gain from the resources available

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Answers Section

1. D
Supply-side policies focus on potential output and therefore D is correct answer.

2. D
Stablisation means reducing fluctuations in national output and keeping the economy as close as possible to trend path in business cycle.

3. A
Value added taxes are regressive in nature and increase inequality of income distribution. Value added taxes will also increase cost of production nad therefore increase unemployment and inflation. However, increase in value added taxes will increase government tax revenue and reduce budget deficit, hence, is correct option.

4. D
With stable and steady economic growth, the average standard of living is likely to improve. But if both productivity and GDP rise then the level of unemployment is likely to remain unchanged. So option D is the correct answer.

5. D
Supply-side policies such as increasing education and training of workers, incentivizing technological advancement all lead to an increase in potential output. So option D is correct.

6. C
Cutting personal taxes would increase disposable income of households. This will increase aggregate expenditure in the economy and therefore increase employment as well. So the answer is option C.

7. D
Taxation policy is focused on collecting revenue for government spending, influence allocation of resources, and impact national income. However, taxes never influence the investment decisions of government enterprises. They have their budget arranged irrespective of total tax collected.

8. D
An economist always aims for the economy to make best use of whatever resources available. So option D perfectly fits into what economists would agree on. Although other options may seem 'better' it is important to note that it may not be possible that a hospital to meet all health care demand without running large amount of losses and putting a drain on the hospital's finances. Moreover, the other two options are statements that perhaps politicians would agree on.

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19.3 Approaches of macroeconomics

1. M/J 16/P32/Q25
According to Keynesian theory, when will an increase in the money supply leave the level of output unchanged?

A when the liquidity trap is operative
B when the money supply increase was not anticipated
C when there is a floating exchange rate
D when there is an immediate adjustment to expectations about future price levels

2. M/J 15/P33/Q17
What will be the short-run effect on the level of output of an increase in the money supply, according to Keynesian theory (assuming the liquidity trap does not apply) and according to monetarist theory (assuming the increase is unanticipated)?

	effect on output	
	Keynesian theory	monetarist theory
A	increase	increase
B	increase	decrease
C	unchanged	increase
D	unchanged	decrease

3. O/N 14/P32/Q22, O/N 11/P31/Q14
According to monetarist theory, if there is an unanticipated increase in the money supply what will be the short-run effect on money wages, real wages and the level of employment?

	money wages	**real wages**	**employment**
A	decrease	decrease	increase
B	decrease	increase	decrease
C	increase	decrease	increase
D	increase	increase	decrease

4. O/N 13/P32/Q19
Which assertion could be described as monetarist rather than Keynesian?

A The interest elasticity of investment expenditure is close to zero.
B The money supply is the main determinant of aggregate monetary expenditure.
C The money supply is the main determinant of output in the long-run.
D The velocity of circulation of money is unstable over time.

5. O/N 14/P14/Q19
An economy is operating at its natural rate of unemployment.
According to monetarist theory, what will be the effect of an unanticipated increase in the money supply on unemployment in the short run and in the long run?

	short run	long run
A	no change	no change
B	no change	reduction
C	reduction	no change
D	reduction	reduction

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6. O/N 12/P32/Q22

An economy's unemployment rate is below the natural rate. What is likely to be the implications of this for inflation and what can be deduced from this about the economy's actual level of output?

	inflation	actual output
A	accelerating	below potential output
B	accelerating	above potential output
C	decelerating	below potential output
D	decelerating	above potential output

7. O/N 10/P32/Q17

According to Keynesian theory, when will an increase in the money supply leave the level of output unchanged?

A when the liquidity trap is operative

B when the money supply increase was not anticipated

C when there is a floating exchange rate

D when there is an immediate adjustment to expectations about future price levels

8. O/N 10/P32/Q18

According to monetarist theory, what will be the short-run and the long-run effect of an unexpected increase in the money supply on the real wage level?

	short-run	long-run
A	decrease	increase
B	decrease	unchanged
C	unchanged	increase
D	unchanged	unchanged

9. O/N 08/P3/Q15

What will be the short-run effect on the level of output of an increase in the money supply, according to Keynesian theory (assuming the liquidity trap does not apply) and according to monetarist theory (assuming the increase is unanticipated)?

	effect on output	
	keynesian theory	monetarist theory
A	Increase	Increase
B	Increase	Unchanged
C	Unchanged	Increase
D	Unchanged	Unchanged

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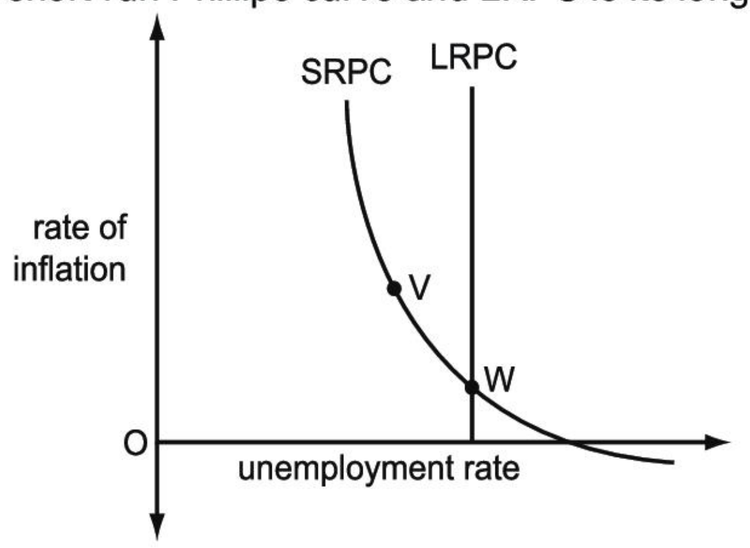
10. M/J 07/P3/Q26, O/N 12/P31/Q26

In the diagram SRPC is an economy's short-run Phillips curve and LRPC is its long-run Phillips curve.



The economy is initially at point W.
An increase in monetary growth moves the economy to point V.
Why is it that the economy cannot stay at point V?

	rate of inflation of point V	unemployment rate at Point V
A	above the expected rate	above the natural rate
B	above the expected rate	below the natural rate
C	below the expected rate	above the natural rate
D	below the expected rate	below the natural rate

11. O/N 05/P3/Q17

According to monetarist theory, when will an increase in the money supply leave the level of output unchanged?

A when the increase in the money supply was not anticipated
B when the exchange rate is flexible
C when the liquidity trap is operative
D when there is an immediate adjustment to expectations about future price levels

12. M/J 05,M/J 09/P32/Q17

According to monetarist theory, which policy objectives are in conflict in the short run, but not in the long run?

A economic growth and full employment
B economic growth and price stability
C full employment and price stability
D price stability and equilibrium in the balance of payments

13. M/J 04,O/N 08/P3/Q26, O/N 12/P33/Q27

The natural rate of unemployment in an economy is 5 %.
What will happen if a government persists in trying to achieve a target rate of unemployment of 3 % by expansionary monetary policy?

A an accelerating rate of inflation
B a diminishing rate of inflation
C a high but constant rate of inflation
D a negative rate of inflation

14. M/J 04,O/N 09/P32/Q22

According to monetarist theory, what will be the short-run effect of an unexpected increase in the money supply?

A an appreciation of the foreign exchange rate
B an increase in employment
C an increase in real wages
D an increase in the rate of interest

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15. M/J 03/P3/Q26

A government uses monetary policy in an attempt to keep actual unemployment continuously below the 'natural' rate of unemployment.
What is likely to be a consequence of this policy?

A a high but constant rate of inflation

B a low but constant rate of inflation

C a decelerating rate of inflation

D an accelerating rate of inflation

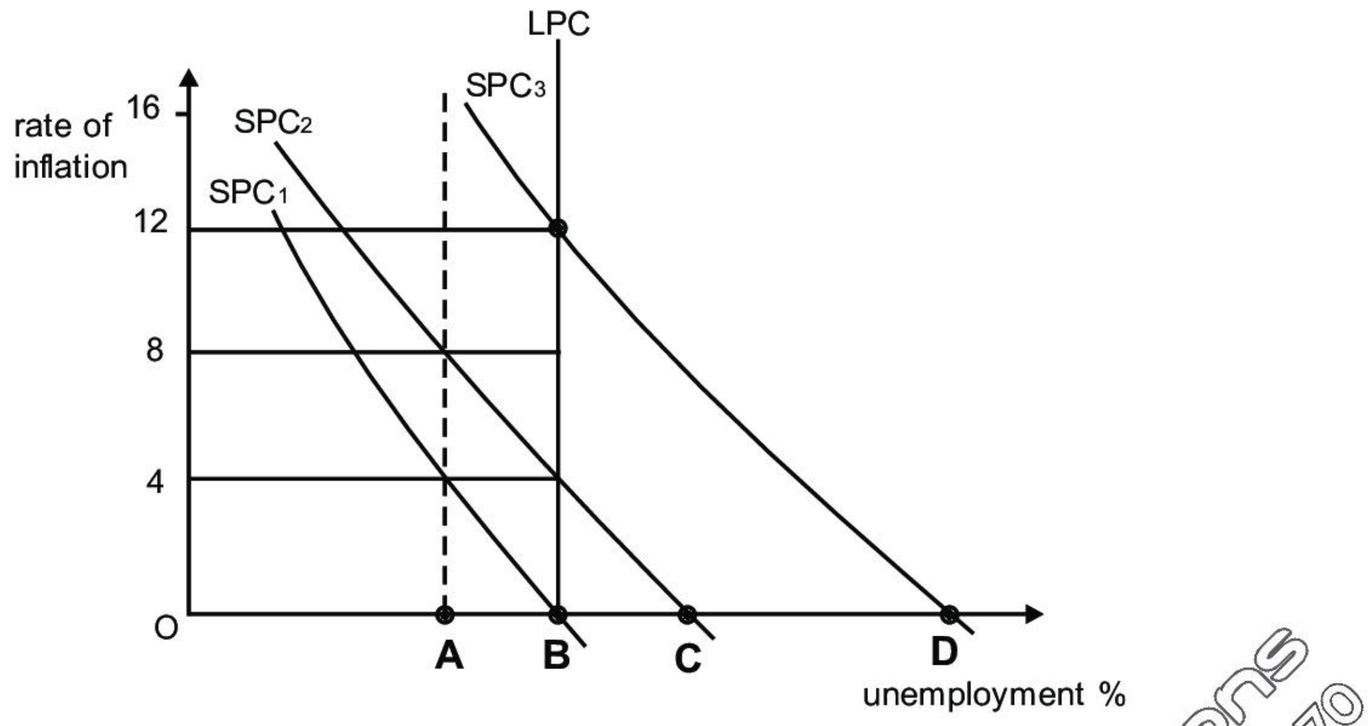
16. M/J 02,O/N 03,M/J 08,M/J 10,M/J 11/P32/Q26

An economy is operating initially at its natural rate of unemployment.
According to monetarist theory, compared to the initial position, what will be the effect on unemployment in the short run and in the long run of an unanticipated increase in the money supply?

	short run	long run
A	no change	no change
B	no change	reduction
C	reduction	no change
D	reduction	reduction

17. M/J 93/P3/Q16

The diagram shows a long-run Phillips curve (LPC) and four short-run Phillips curves (SPC). The economy is initially at the natural rate of unemployment (OB), with an inflation rate of 12%.
Inflationary expectation remain at 12% and the government wishes to eliminate inflation immediately.
What level of unemployment will it have to accept in the short run?



18. M/J 13/P32/Q19

According to monetarist theory, what will be the short-run effect on the level of output and on the price level of an unanticipated increase in the money supply?

	effect on output	effect on the price level
A	increase	increase
B	increase	no change
C	no change	increase
D	no change	no change

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19. O/N 13/P33/Q17
According to monetarist theory, what will be affected in the long run by a change in the money supply?

	the level of output	the price level	the level of unemployment
A	no	no	yes
B	no	yes	no
C	yes	no	yes
D	yes	yes	no

20. M/J 12/P32/Q20, M/J 04/P3/Q22
According to monetarist theory, what will be the short-run effect of an unexpected increase in the money supply?

A an appreciation of the foreign exchange rate
B an increase in employment
C an increase in real wages
D an increase in the rate of interest

21. O/N 12/P33/Q19
According to monetarist theory, which policy objectives are in conflict in the short run, but not in the long run?

A economic growth and full employment
B economic growth and price stability
C price stability and equilibrium in the balance of payments
D price stability and full employment

22. M/J 07/P3/Q21
Which assertion could be described as monetarist rather than Keynesian?

A Central banks must directly control interest rates to influence the money supply.
B The interest elasticity of investment expenditure is close to zero.
C The money supply is the main determinant of aggregate monetary expenditure.
D The velocity of circulation of money is unstable over time.

23. M/J 12/P33/Q19
Which statement would be consistent with a monetarist view of the workings of the macro economy?

A The demand for money function can shift in an unpredictable way.
B The velocity of circulation of money is unstable over time.
C Interest rates have little effect on aggregate money expenditure.
D A sustained inflation is always associated with an increasing money supply.

24. M/J 10/P33/Q16, M/J 10/P32/Q16
What is a central assertion of monetarist economics?

A Fiscal policy should be used for the continuous management of the economy.
B Major recessions can occur despite an unchanged money supply.
C The money supply is the main determinant of aggregate monetary expenditure.
D The velocity of circulation of money is unstable over time.

25. O/N 06/P3/Q18, M/J 03/P3/Q20
Which statement is consistent with a Keynesian view of the workings of the macro economy?

A Recessions can result from fluctuations in private investment expenditure
B Interest rates move to ensure continuous equality between savings and investment plans.
C Money wages in the economy in the short run are perfectly flexible.
D Changes in aggregate demand cannot occur without equivalent changes in the money supply.

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26. M/J 06/P3/Q18
What is a central assertion of 'Monetarist' economics?
A Fiscal policy should be used for the continuous management of the economy.
B Major recessions can occur despite an unchanged money supply.
C The money supply dominates the determination of aggregate monetary expenditure.
D The velocity of circulation of money is unstable over time.

27. M/J 04/P3/Q30
What would represent a monetarist anti-inflationary policy?
A an increase in indirect taxation
B direct foreign exchange rate intervention
C the introduction of maximum prices
D the sale of securities on the open market

28. O/N 93/P3/Q28
Which of the following is an important principle of monetarist doctrine?
A The money stock is independent of savings.
B There is a stable relationship between the money supply and money national income.
C It is impossible for a government to take any action will reduce unemployment.
D People suffer from money illusion.

29. M/J 91/P3/Q35
Which of the following propositions is part of monetarist doctrine in the context of a closed economy?
A Fiscal policy is a more powerful policy instrument than monetary policy.
B Unemployment can be reduced permanently demand management.
C The supply of money is determined independently of the demand for money.
D The private sector of the economy is inherently unstable.

30. M/J 91/P3
In pre-keynesian (classical) theory, it was widely held that in a closed economy with no government, planned savings were brought into equality with planned investment by changes in
A the level of autonomous consumption
B the level of induced consumption
C the level of national income
D the rate of interest

31. M/J 82/P3
According to Keynesian economics, what should a government do if aggregate monetary demand is considered to be too low?
A budget for a deficit
B control prices
C discourage investment
D raise interest rates

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Answers Section

1. A

2. A

3. C

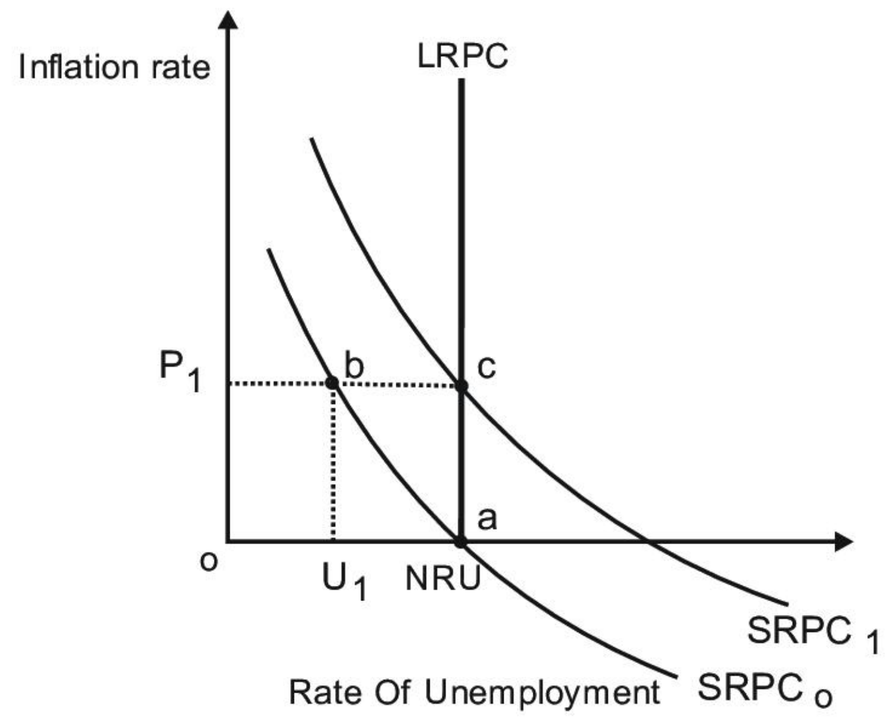
The unanticipated increase in money supply will lead to unexpected inflation in the economy. Workers would be willing to work more if firms provide them with higher nominal wages, so both employment and nominal wages increase. However, the higher inflation rate will reduce real wages. So option C is correct.

4. B

The main dispute between monetarist and Keynesians is on the impact of interest rate and interest rate on aggregate expenditure in an economy. Monetarists argue that change in interest rates could have significant impact on AE, since both households and businesses will spend more. Keynesians on the other hand claim that other factors such as fiscal policy play a more significant role in determination of aggregate expenditure in an economy. So option A is incorrect since monetarist claim that investment expenditure is affected by interest rates. Option B is correct-as argued earlier that this is the main argument presented by monetarists. Options C and D are topics that are wrong theoretically speaking.

5. C

According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation.

6. B

If the unemployment rate is below the natural rate, then that means the economy has employed more people than it can handle in the long run. Therefore, less unemployment means more competition for workers which leads to rising wages and in the end accelerating inflation as well. If the economy is employing above its natural rate then it must also be producing more than its potential in the short run. So option B is correct.

7. A

In liquidity trap, increase in money supply does not change interest rate and hence does not affect AD.

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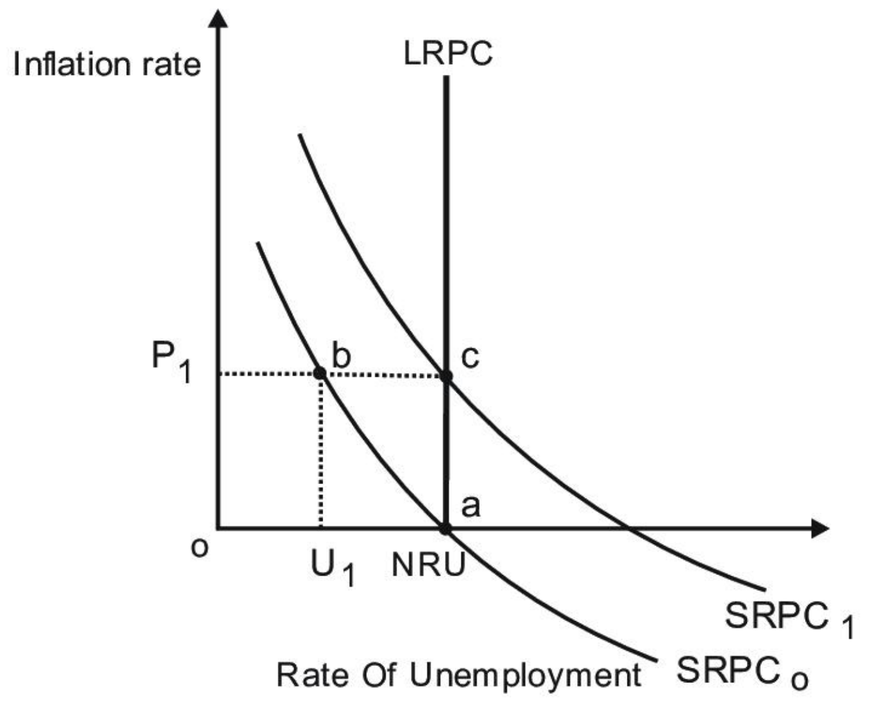
8. B

According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation.

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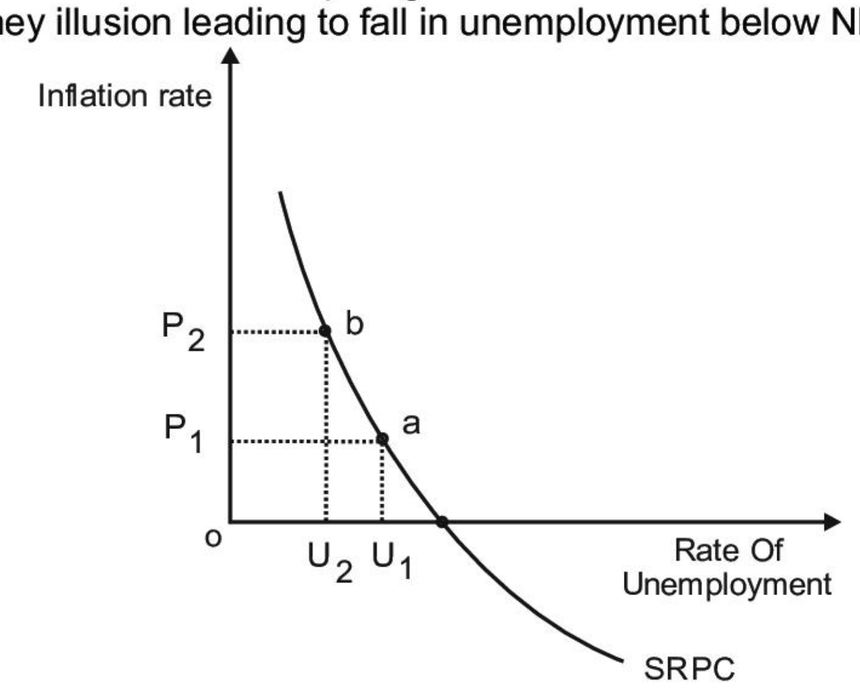
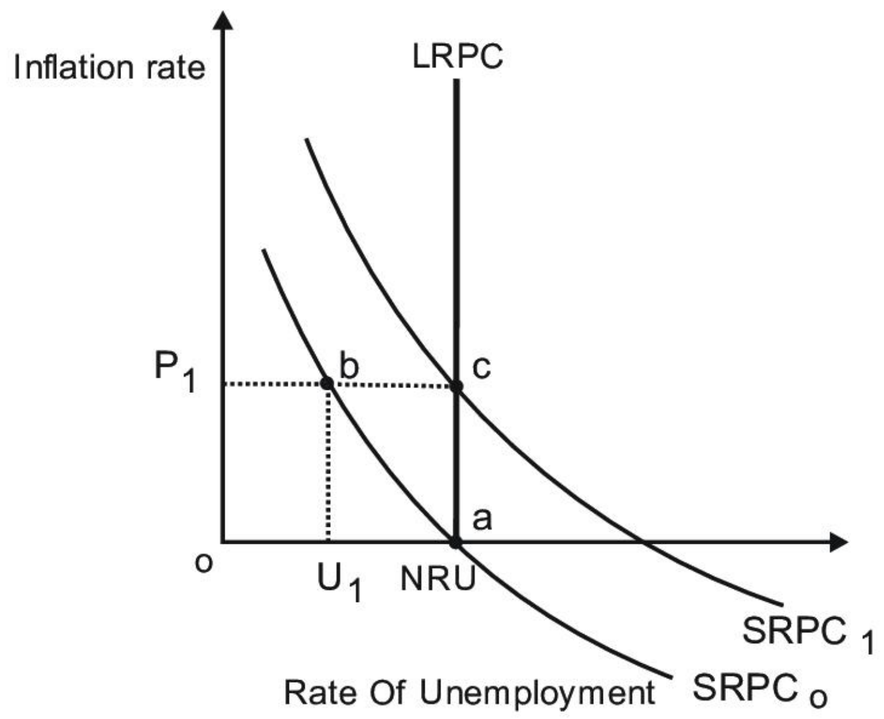
9. A

According to keynesians approach, workers suffer from asymmetric information and they are trapped in money illusion when they make their decisions based on their money wages. An increase in AD will raise nominal wages and therefore workers will work more due to money illusion leading to fall in unemployment below NRU. This produces SRPC.



According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation.

Hence, if workers immediately adjust their expectations about price level, they will never be caught in money illusion and unemployment will always stay at NAIRU.

10. B

At V, rate of inflation is above expected rate where as unemployment rate is below NAIRU.

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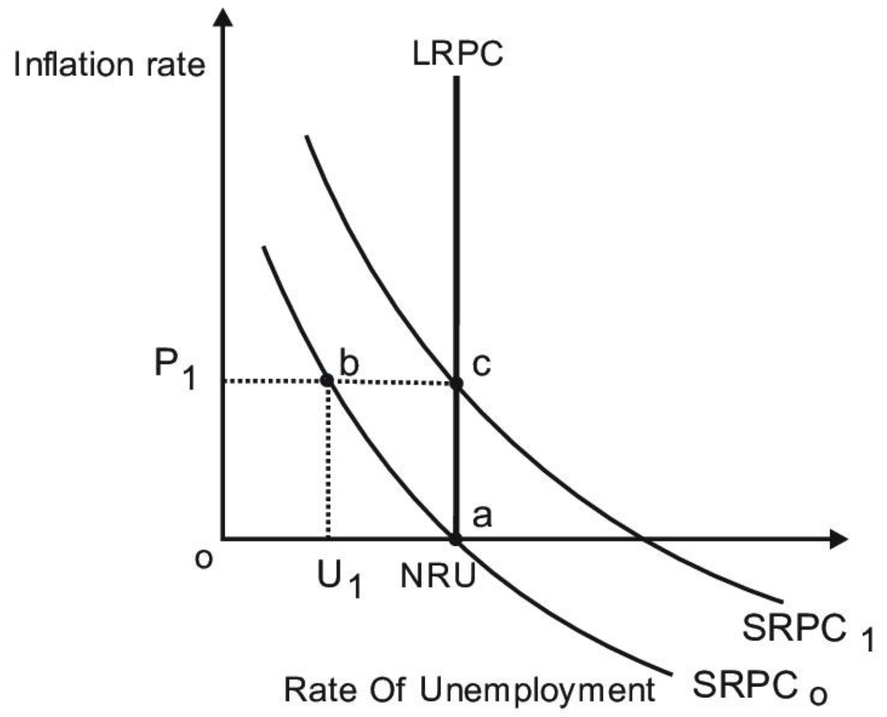
11. D

According to monetarist approach, workers do understand and have information of the changes in their real wages This produces a LRPC on which an increase AD will only end up with more inflation keeping unemployment rate unchanged at natural rate of unemployment (NRU).

If government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.

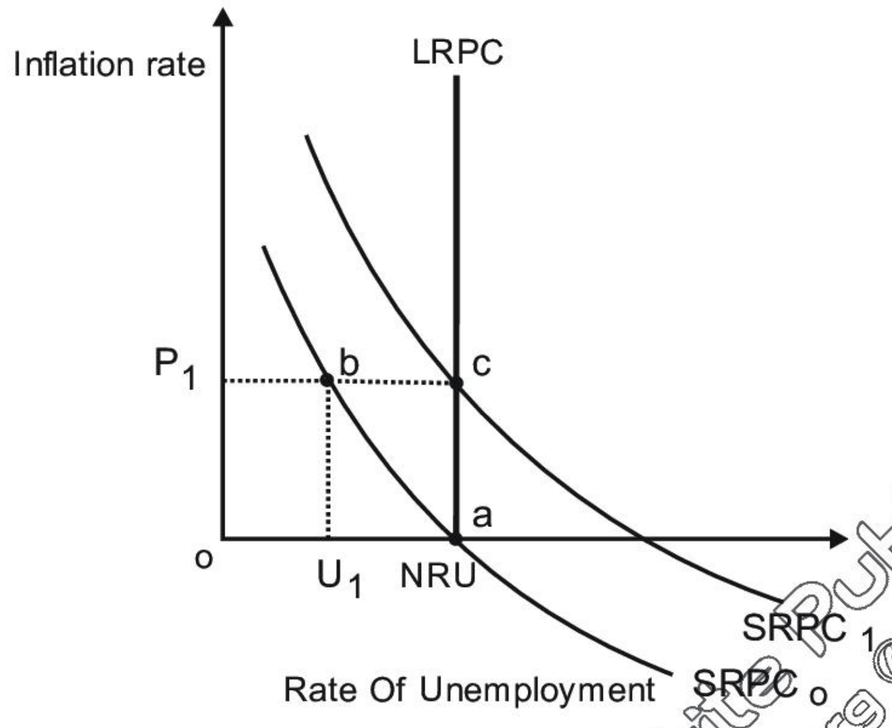


However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation.

Hence, if workers immediately adjust their expectations about price level, they will never be caught in money illusion and unemployment will always stay at NAIRU.

12. C

According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation.

Hence, according to monetarists, objectives of lower inflation and lower unemployment will conflict only in short run but not in long run.

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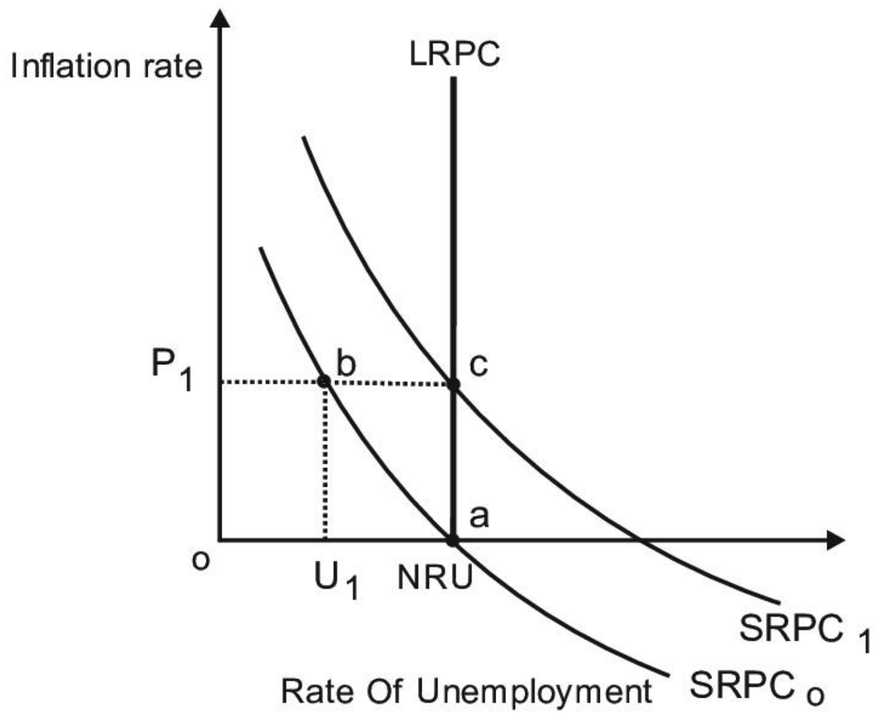
13. A

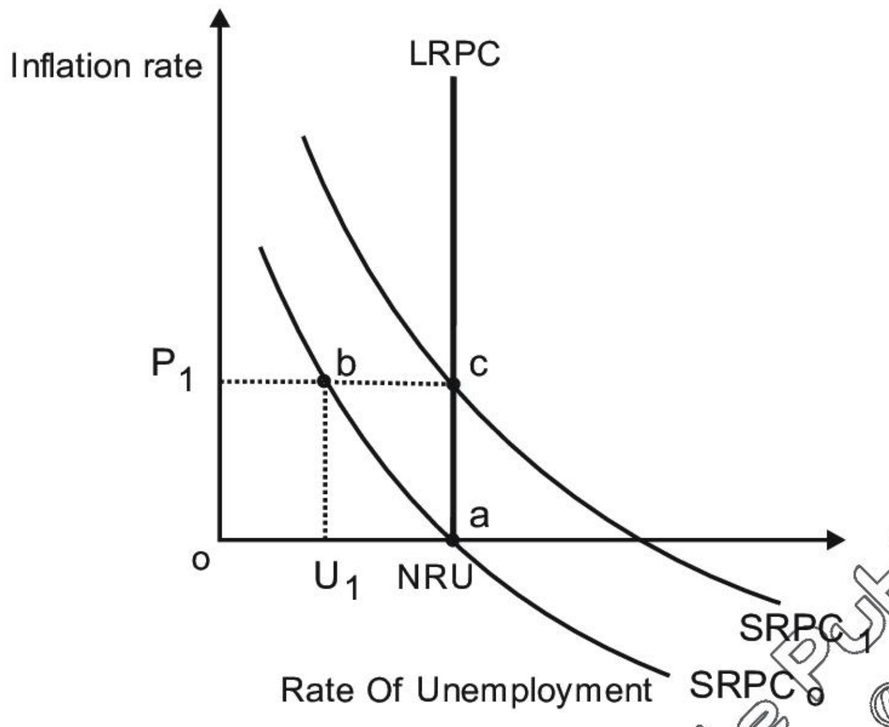
According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation.

14. B

According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation.

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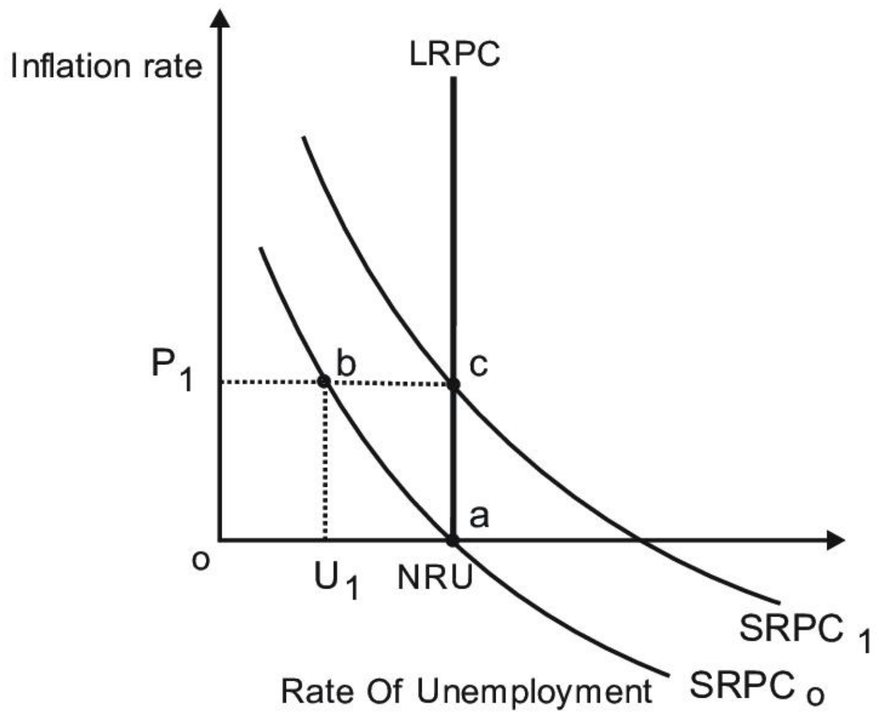
15. D

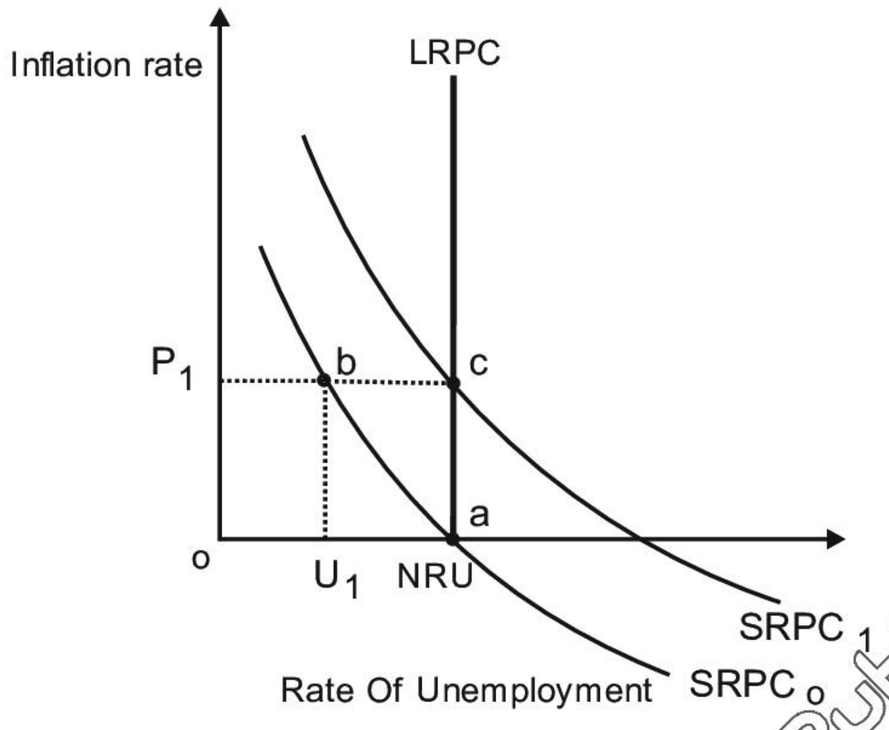
According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation.

16. C

According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate.

17. D

In Short Run, economy is at SPC_3. So, it will follow SPC_3 in short run and unemployment will be at D with zero inflation rate.

18. A

An unexpected increase in money supply causes AD to go up. This is because firms and households tend to use up more credit and therefore produce more. But with excess money supply, people will have more money to spend and thus the price level will go up as well. So option A is correct.

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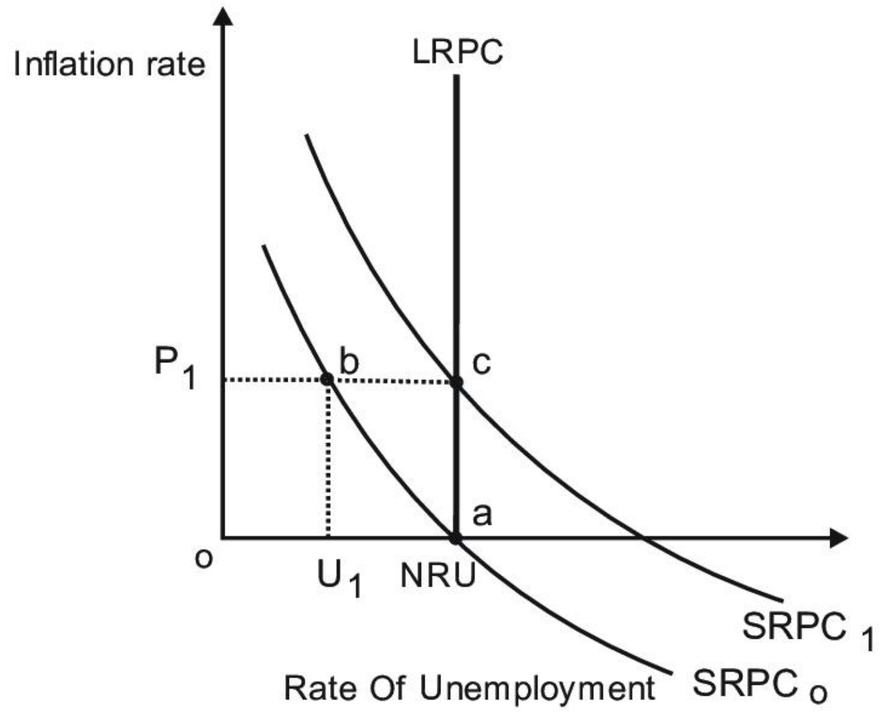
19. B

20. B

An increase in the money supply will increase consumption expenditure, causing an increase in aggregate demand (AD), which will, further, increase the price level. According to the Phillips curve, an increase in the price level will cause a decrease in unemployment, i.e., an increase in employment. Hence, the answer is option B. Since an increase in the money supply will increase consumption expenditure, it will possibly allow consumers to afford more imports. The outflow of local currency will increase its supply, causing the exchange rate to depreciate, not appreciate, which is why option A is incorrect. The interest rate has no relation to the money supply.

21. D

According to monetarist approach, if government attempts to reduce unemployment below natural rate of unemployment (NRU). In short run trade off occurs because of money illusion' employees focus on their money wages and not their real wages, e.g. when money wages rise, more people accept jobs in the short run even though real wages may not have increased.



However, in long run workers realize a fall in their real wages and therefore adjust their expectations of inflation accordingly. Demand for higher wages by workers restore employment to natural rate and therefore any attempt to reduce unemployment below NRU will only accelerate inflation. Hence, according to monetarists, objectives of lower inflation or price stability and lower unemployment or full employment will conflict only in short run but not in long run.

22. C

Monetarists believe that the money supply is both the cause of economic outcomes and the cure for economic issues because it is the main determinant of aggregate monetary expenditure.

23. D

Monetarists believe that the money supply is both the cause of economic outcomes and the cure for economic issues. Hence, a sustained inflation is always associated with an increasing money supply.

24. C

Monetarists believe that the money supply is both the cause of economic outcomes and the cure for economic issues because it is the main determinant of aggregate monetary expenditure.

25. A

Keynesians believe that fluctuations in private investment expenditure are the cause of recession.

26. C

Monetarists believe that the money supply is both the cause of economic outcomes and the cure for economic issues.

27. D

Anti-inflationary monetary policy decreases money supply by selling bonds in open market.

28. B

Monetarists believe that there is a stable relationship between the money supply and money national income.

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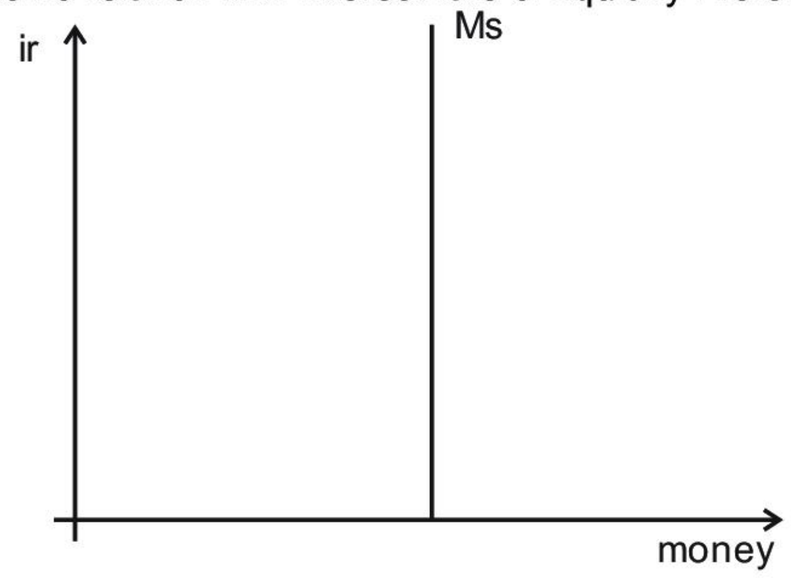
29. C

Monetarists believe money supply has no relation with interest rate or liquidity Preference (LP) and is shown below.



30. D

In classical economic theory, saving is defined as a function of interest rates, which is why changes in interest rates bring investment and savings into equality.

31. A

Aggregate demand (AD) is represented symbolically as AD=C+G+I+(X-M). Any increase or decrease in the individual components that make up AD will cause an appropriate shift in AD itself. If aggregate monetary demand is considered to be too low, then it must be increased. A budget deficit occurs when government spending exceeds government revenue. By increasing government expenditure (G), the AD curve will shift to the right, i.e., it will increase. Hence, option A is the answer. In the theory of AD, the price level is an endogenous variable—it is allowed to vary on the vertical axis—which causes changes in the respective national income (NI); therefore, option B is incorrect. If investment (I) is discouraged, it will cause a reduction in AD, which is why option C is incorrect. Raising interest rates is a measure of deflationary monetary policy, intended to reduce interest-sensitive consumption expenditure and investment expenditure (due to the increase in the cost of credit) and an increase in savings (due to an increase in the opportunity cost of consumption). Deflationary monetary policy is, thus, meant to reduce AD, not increase it, which is why option D is wrong.

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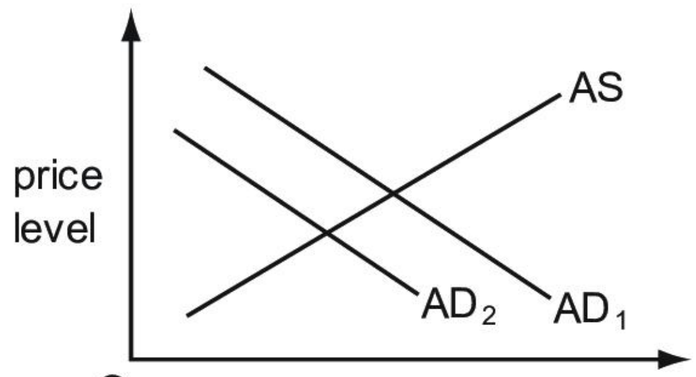
Unit 20 Others

20.1 Aggregate demand and supply

1. O/N 11/P31/Q17, O/N 11/P33/Q16

In the diagram, AD_1 and AS are an economy's original aggregate demand and aggregate supply curves.

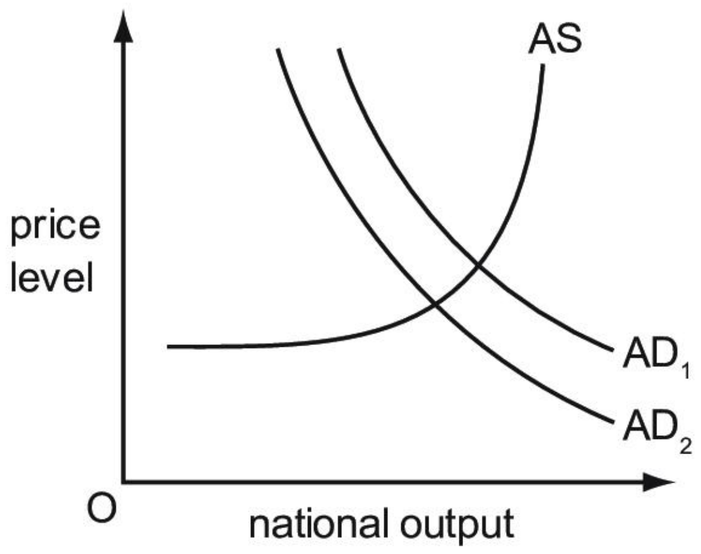


What will cause the aggregate demand curve to shift to AD_2?

A an appreciation of the currency
B an increase in the money supply
C an increase in the price level
D an increase in the real wage

2. O/N 11/P32/Q21

The diagram shows an economy's aggregate demand and aggregate supply curves.



What could cause the aggregate demand curve to shift from AD_1 to AD_2?

A an appreciation in the exchange rate
B an increase in the money supply
C a decrease in the interest rate
D a fall in the unemployment level

3. M/J 11/P32/Q17

Other things being equal, what will result in a decrease in aggregate demand?

A a decrease in interest rates
B a decrease in the balance of trade deficit
C a decrease in the government's budget deficit
D a decrease in the household saving ratio

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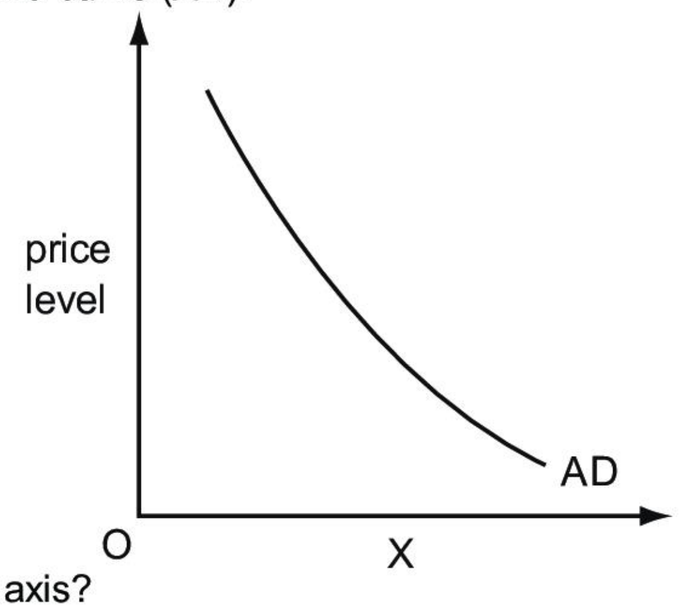
4. M/J 08/P3/Q22

The diagram shows an aggregate demand curve (AD).

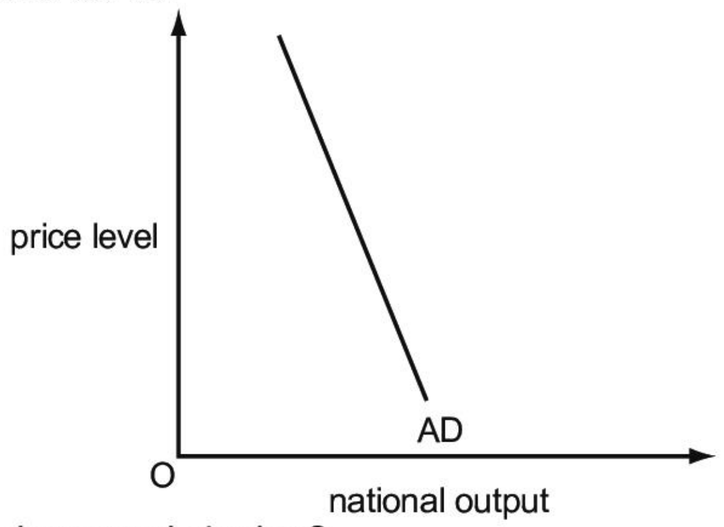


What is measured on the horizontal (X) axis?

A money national output
B nominal national income
C real disposable income
D real GDP

5. M/J 06,M/J 09,O/N 10/P32/Q19

The diagram shows an aggregate demand curve.



What helps to explain why the curve is downward sloping?

A When exports increase there will be an increase in national income.
B When investment increases there will be an increase in consumption.
C When the price level increases there will be an increase in interest rates.
D When government expenditure increases there will be an increase in national output.

6. O/N 05/P3/Q20

An aggregate demand curve slopes downwards from left to right.
One reason for this is that a reduction in the average price level will lead to

A an increase in the real value of money balances.
B an increase in interest rates.
C a decline in the country's international competitiveness.
D the expectation of further price falls.

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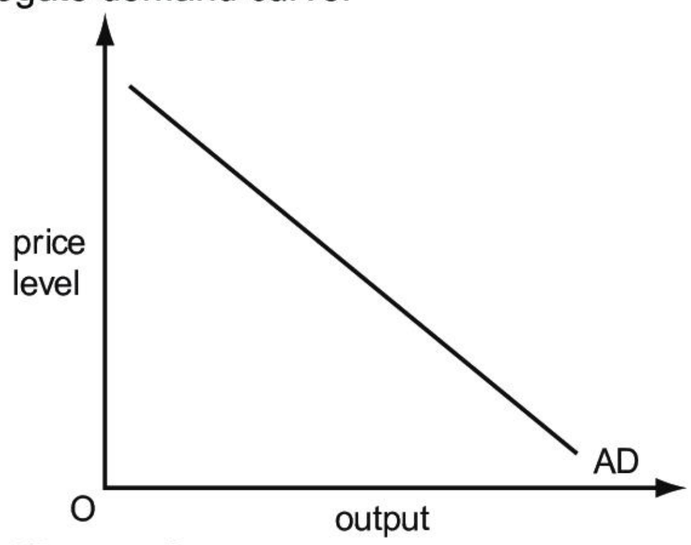
7. O/N 04/P3/Q23

The diagram shows an economy's aggregate demand curve.



What is held constant when drawing an AD curve?

A the exchange rate **B** the money supply **C** the rate of interest **D** the price level

8. O/N 02/P3/Q18

One of the reasons why a country's aggregate demand curve slopes downwards is that a fall in the average price level

A leads to an increase in interest rates.

B reduces the real value of money balances.

C makes the country's goods cheaper relative to foreign goods.

D leads to the expectation of further price falls.

9. M/J 14/P32/Q20

Other things being equal, what will result in a decrease in aggregate demand?

A a decrease in interest rates

B a decrease in the balance of trade deficit

C a decrease in the government's budget deficit

D a decrease in the household saving ratio

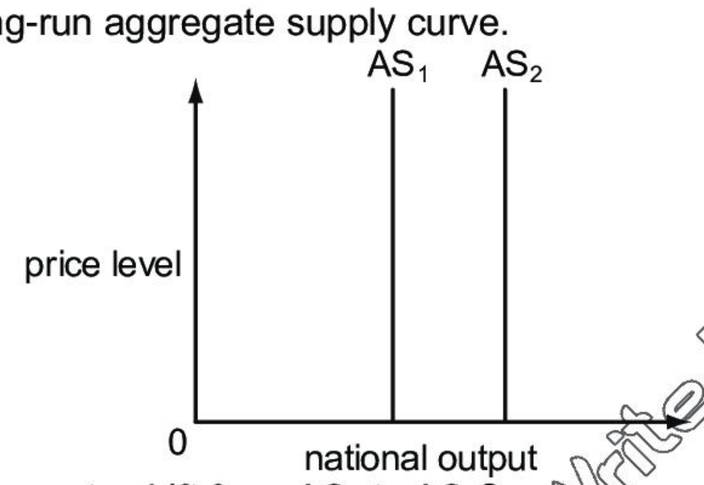
10. O/N 11/P32/Q20

What will be the effect, in the short run, on the price level and on national output of an increase in aggregate demand if firms are working at full capacity?

	price level	national output
A	rise	rise
B	rise	unchanged
C	unchanged	rise
D	unchanged	unchanged

11. M/J 10/P32/Q20

In the diagram AS_1 is an economy's long-run aggregate supply curve.



What will cause the aggregate supply curve to shift from AS_1 to AS_2?

A an increase in consumer spending

B an increase in inflation

C an increase in productivity

D an increase in net exports

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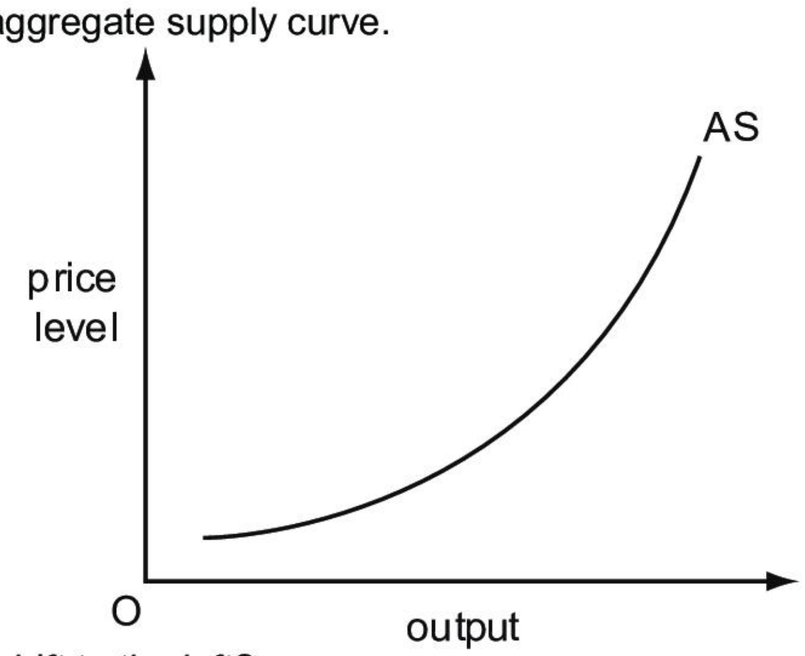
12. O/N 09/P32/Q21

The diagram shows an economy's aggregate supply curve.



What is likely to cause the curve to shift to the left?

A improvements in technology

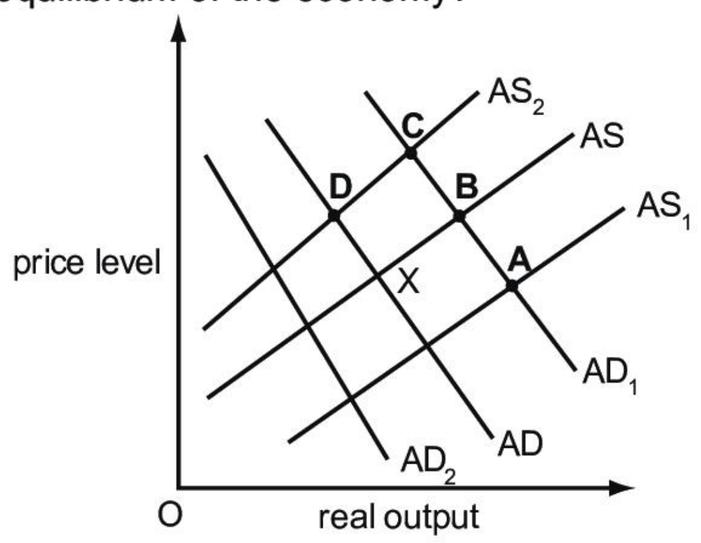
B schemes to increase the geographical mobility of labour

C an increase in investment due to a reduction in interest rates

D an increase in the marginal rate of income tax

13. O/N 08/P3/Q17

In the diagram an economy is initially in equilibrium at point X.
The government increases spending on education. At the same time there is a decrease in money wage rates.
Which point shows the most likely new equilibrium of the economy?



14. O/N 06/P3/Q19

What would explain why an economy's short-run aggregate supply curve is upward sloping?

A a constant price level

B constant money wages

C diseconomies of scale

D economies of scale

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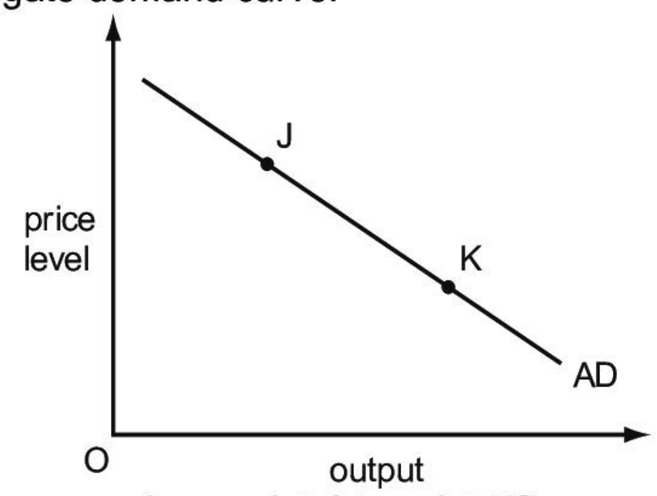
15. M/J 05/P3/Q20

The diagram shows an economy's aggregate demand curve.



Which change will occur as the economy moves from point J to point K?

A an increase in the money supply
B a decrease in the money supply
C an increase in interest rates
D a decrease in interest rates

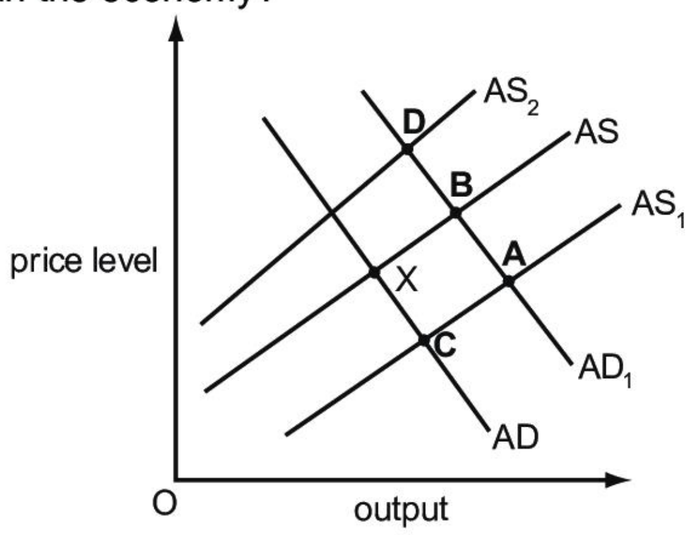
16. M/J 04,O/N 07/P3/Q23

What is likely to cause a decrease in aggregate supply?

A a decrease in consumption expenditure
B an increase in labour productivity
C a decrease in rates of unemployment benefit
D an increase in wage costs per unit of output

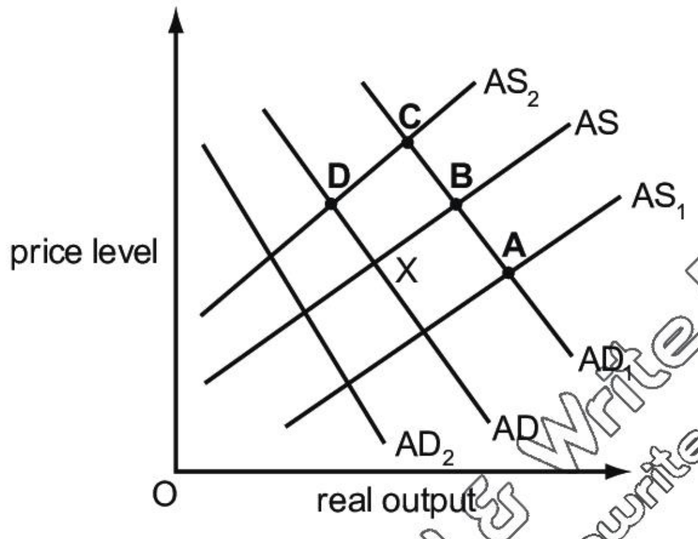
17. O/N 03,M/J 07/P3/Q23

An economy is currently in equilibrium at point X.
Government expenditure is increased on retraining programmes for those out of work. This raises the productivity of the trainees.
Which point shows the new equilibrium in the economy?



18. M/J 03/P3/Q23

In the diagram an economy is initially in equilibrium at point X.
The government increases spending on education. This coincides with an increase in wage rate inflation.



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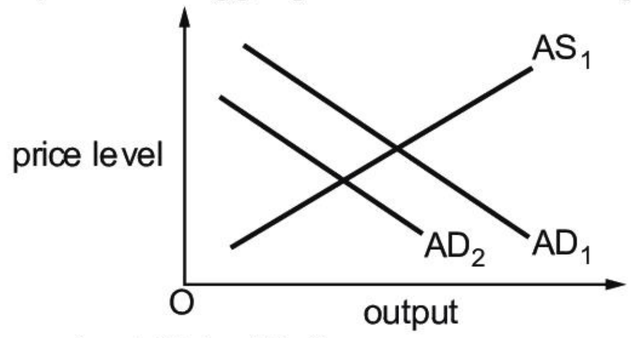
19. O/N 02/P3/Q17

In the diagram AD_1 and AS_1 are an economy's initial aggregate demand and aggregate supply curves.



What will cause the aggregate demand curve to shift to AD_2?

A a depreciation of the currency

B an increase in the price level

C an increase in the real wage

D a reduction in the money supply

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Answers Section

1. A
An appreciation of the currency will make exports expensive and imports cheaper and therefore causes fall in net exports and aggregate demand in long run. Hence A is correct answer.
An increase in the money supply will raise AD while an increase in price level will not shift AD rather it will cause a movement along the same curve. An increase in real wages will raise the cost of production and therefore shift AS rather than AD.

2. A
An appreciation of the exchange rate means that exports will become more expensive while imports are relatively cheaper now. So the net exports component (X-M) will worsen because exports will fall and imports will increase. This explains the leftward shift in AD. An increase in money supply and fall in interest rate both will lead to people spending more, since in one case they have more money in hand and in the other borrowing has become cheaper. A fall in unemployment suggests that more people are earning through jobs, so AD should increase.

3. C
A decrease in government budget deficit will mean there are greater taxes and lesser government spending (G). As decrease in G leads to decrease in AD so C is the answer. Option A will increase AD and so will B because greater exports or lesser imports both increase AD. Option D affects AS only.

4. D
As per definition real GDP is measured at X axis.

5. C
An increase in price levels increases interest rates and this leads to decrease in AD.
A reduction in price level leads to greater AD due to 3 reasons:
(i) Real value of money balances increases.
(ii) Money transactions and precautionary demand falls and so will be liquidity preference leading to a decline in interest rate. This fall in interest rate accelerates consumption and investment.
(iii) A fall in price level makes local goods cheaper and imported ones relatively expensive ending up with rise in net exports and AD.

6. A
A reduction in price levels will increase the real value of money balances therefore Option A is correct. A reduction in price level leads to greater AD due to 3 reasons:
(i) Real value of money balances increases.
(ii) Money transactions and precautionary demand falls and so will be liquidity preference leading to a decline in interest rate. This fall in interest rate accelerates consumption and investment.
(iii) A fall in price level makes local goods cheaper and imported ones relatively expensive ending up with rise in net exports and AD.

7. B
The money supply is always assumed constant while drawing an AD curve because changes in money supply lead to shift in AD.
A reduction in price level leads to greater AD due to 3 reasons:
(i) Real value of money balances increases.
(ii) Money transactions and precautionary demand falls and so will be liquidity preference leading to a decline in interest rate. This fall in interest rate accelerates consumption and investment.
(iii) A fall in price level makes local goods cheaper and imported ones relatively expensive ending up with rise in net exports and AD.

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8. C

A decrease in general price level means that prices of basket of goods and services have decreased. Therefore local goods are now cheaper than foreign goods and this urges people to consume more of local goods and reduce the imports. This increases the aggregate demand.

A reduction in price level leads to greater AD due to 3 reasons:

(i) Real value of money balances increases.

(ii) Money transactions and precautionary demand falls and so will be liquidity preference leading to a decline in interest rate. This fall in interest rate accelerates consumption and investment.

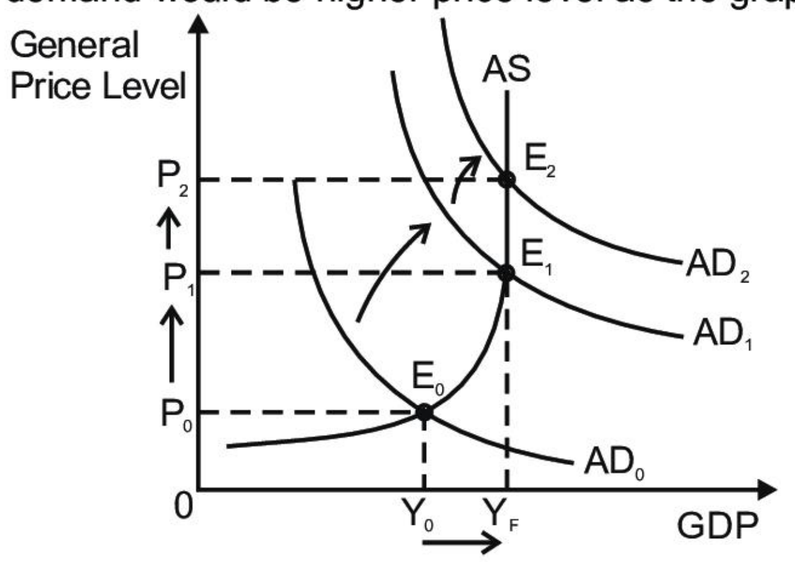
(iii) A fall in price level makes local goods cheaper and imported ones relatively expensive ending up with rise in net exports and AD.

9. C

A decrease in interest rates would make it cheaper to borrow and therefore both consumption and investment will increase in order take advantage of lower borrowing costs. AD=C+I+G+(X-M), a trade deficit means imports are greater than exports and this will therefore reduce aggregate demand. A lower trade deficit means less amount would be subtracted so aggregate demand could be higher. A decrease in the government's budget deficit would mean a fall in government spending which reduces aggregate demand so option C is correct. A decrease in the household saving ration means consumers are spending a higher proportion of their income, so C will increase and as a consequent so will aggregate demand.

10. B

Since the economy is already operating at full capacity even if aggregate demand rises national output cannot increase. So the result of the higher aggregate demand would be higher price level as the graph shows.



As the diagram shows if the economy is operating at full capacity (Y_F) then even if aggregate demand increases (AD_1 to AD_2) only the price level changes.

11. C

Increase in productivity reduces per unit cost of production and leads to rise in AS.

12. D

Improvement in technology will lead to rise in AS and shift it to right. Option B also shifts AS to right. Option C shifts AD to left. Option D will increase the per unit cost of production and shift AS to left.

13. A

An increase in govt. spending (G) will increase the aggregate demand of country. Hence AD will shift to AD_1. Wage rate deflation will lead to rise in aggregate supply and AS will shift to AS_1. Hence the new equilibrium point will be point A.

14. B

In short run, the economy is assumed to be running under constant money wages. With constant wages and output will be increased with increase in price level, as producers real profits increase due to fall in real wages. Economies and diseconomies are micro economic concerns and price level must change in upward scooping AS.

15. D

A decrease in price level will reduce LP and therefore interest rate whereas changes in money supply will shift aggregate demand.

16. D

Option A affects AD only. Option B will lead to rise in aggregate supply. Option C will not affect AS whereas an increase in wage costs per unit increase production costs and lead to fall in aggregate supply.

17. A

An increase in government spending (G) on retraining will increase the aggregate demand of country. Hence AD will shift to AD_1. Increase in productivity will lead to rise in aggregate supply (AS_1) as total supply of economy will increase. Hence the new equilibrium point will be at A.

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18. C

An increase in govt. spending (G) will increase the national income and Aggregate Demand of country. Hence AD will shift to $AD_{1.}$ Wage rate inflation will lead to fall in Aggregate Supply and AS will shift to $AS_{2.}$ Hence the new equilibrium point will be point C.

19. D

A reduction in money supply will lead to rise in interest rates. Rise in Interest rates will lead to decrease in consumption and investment which in turn will lead to fall in Aggregate Demand.

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20.2 Elasticity

1. **M/J 15/P33/Q10**
A bad harvest for an agricultural crop results in an increase in the total revenue received collectively by farmers.
If the demand schedule remains the same, what can be concluded from this?
A Demand is price elastic.
B Demand is price inelastic.
C Supply is price elastic.
D Supply is price inelastic.

2. **O/N 14/P32/Q10, O/N 13/P33/Q11, M/J 12/P31/Q9, M/J 13/P31/Q9**
The price elasticity of demand for a firm's product is zero.
What will be the effect on the firm's revenue if it reduces its price by 5%?
A Its revenue will be unchanged.
B Its revenue will decrease by 5%.
C Its revenue will increase by 5%.
D Its revenue will fall to zero.

3. **M/J 13/P32/Q10**
The demand for a firm's product is perfectly inelastic.
What will be the effect on the firm's revenue if it increases its price by 5%?
A Its revenue will be unchanged.
B Its revenue will increase by 5%.
C Its revenue will decrease by 5%.
D Its revenue will fall to zero.

4. **O/N 12/P31/Q9**
A firm estimates that, all else remaining unchanged, an increase in its output would leave its revenue unchanged.
What can be deduced from this about the price elasticity of demand for the firm's product?
A It is –1.
B It is +1.
C It is perfectly inelastic.
D It is perfectly elastic.

5. **O/N 02/P3/Q26, O/N 02/P3/Q26**
What would explain why the prices of the primary commodities produced by less developed countries fluctuate widely from year to year?
A the development of artificial substitutes for natural products
B the introduction of more capital-intensive methods of production by mineral producers
C inelasticity of both the supply and demand for these products
D improvements in agricultural productivity

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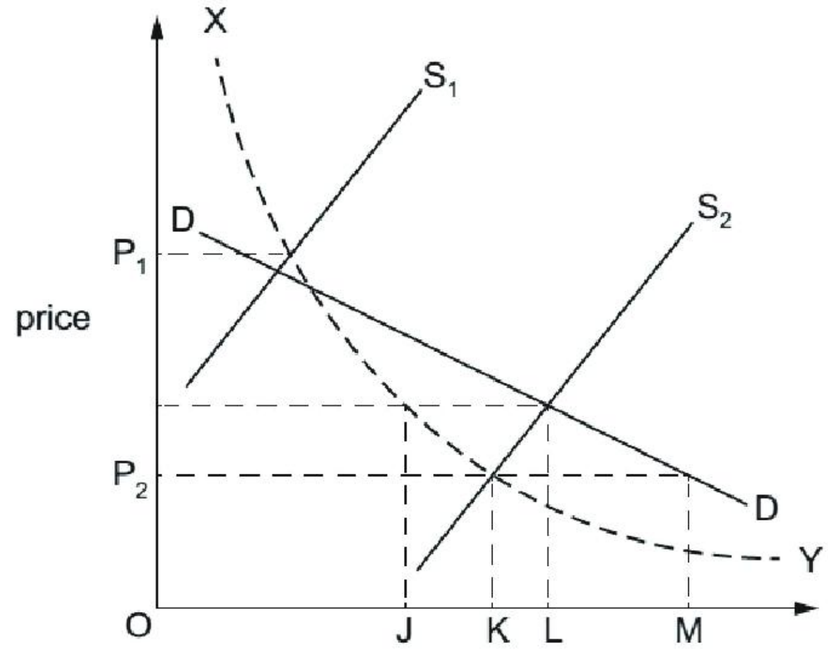
6. O/N 14/P33/Q15

In the diagram, DD is the demand curve for an agricultural commodity, S_1 is the supply curve in period 1 and S_2 is the supply curve in period 2. The broken curve XY is a rectangular hyperbola.



The government operates a buffer stock scheme designed to keep farm revenue unchanged.
In period 1 the price is fixed at P_1.
What action will the government need to take in period 2 to fix the price at P_2?

A add quantity JK to the buffer stock
B add quantity KL to the buffer stock
C release quantity KL from the buffer stock
D release quantity KM from the buffer stock

7. O/N 09/P32/Q10

The price elasticity of demand for a firm's product is zero.
What will be the effect on the firm's revenue if it increases its price by 5 %?

A Its revenue will be unchanged.
B Its revenue will increase by 5 %.
C Its revenue will decrease by 5 %.
D Its revenue will fall to zero.

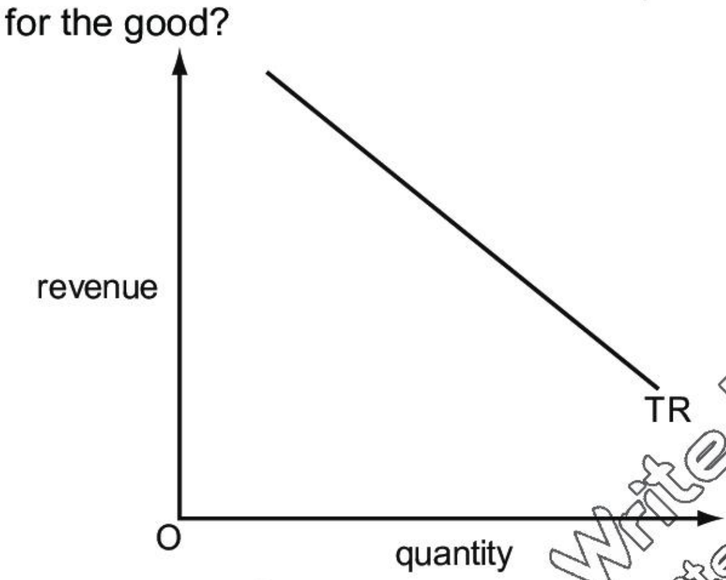
8. M/J 09/P32/Q7

A firm estimates that, all else remaining unchanged, an increase in its output will result in an equal proportionate increase in its revenue.
What can be deduced from this about the price elasticity of demand for the firm's product?

A It is –1
B It is +1.
C It is perfectly inelastic.
D It is perfectly elastic.

9. O/N 03/P3/Q13

The diagram shows the relationship between a firm's total revenue and the quantity of goods sold.
What is the price elasticity of demand for the good?



A zero
B between zero and one
C one
D between one and infinity

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10. M/J 09/P32/Q7

A firm estimates that, all else remaining unchanged, an increase in its output will result in an equal proportionate increase in its revenue.

What can be deduced from this about the price elasticity of demand for the firm's product?

A It is –1

B It is +1.

C It is perfectly inelastic.

D It is perfectly elastic.

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Answers Section

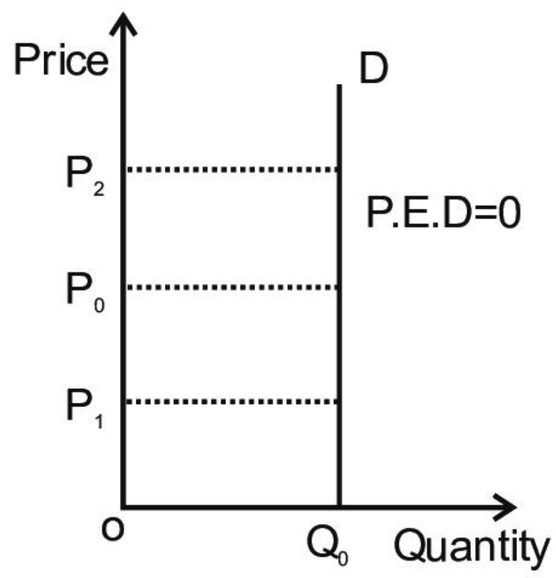
1. B

Bad harvest will cause a fall in supply leading to an increase in price of the crop. As total revenue received increases therefore demand must be price inelastic.

2. B

Price elasticity of demand= $\frac{\%\Delta Qd}{\%\Delta Price}$. So if P.E.D is zero, that means %change in Qd is zero which is in case of a perfectly inelastic demand curve. If the firm reduces price by 5% then revenue will fall by 5% as well since quantity remains the same. Total revenue = price x quantity. So according to the equation if price falls by 5% and quantity is constant, total revenue will also fall by 5%. Option B is correct in this case.

3. B



A perfectly inelastic firm is when quantity does not change no matter what the price is. So if price goes up by 5%, then total revenue will go up by 5% as well, since quantity demanded remains unchanged. So option B is correct.

4. A

If total revenue stays unchanged with the change in price or quantity, it will be unitary elastic.

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5. C

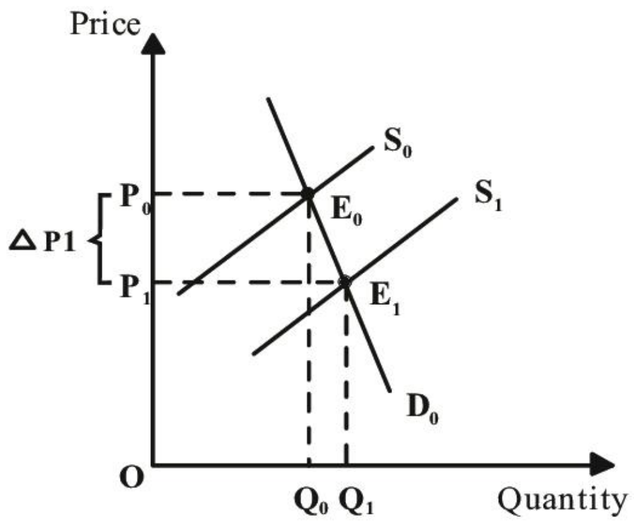

Figure 1

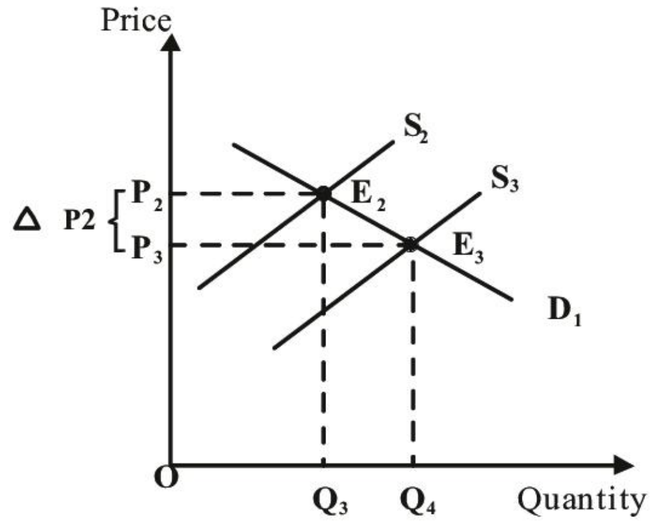

Figure 2

Less developed countries usually tend to be agrarian societies—those highly dependent on agriculture. Since these commodities are usually necessities, their demand tends to be highly inelastic. Supply for agricultural commodities tends to be highly inelastic because the yield for harvests is fixed and cannot be altered in a short amount of time. With inelastic demand and supply, shifts cause much bigger changes in prices, as compared to the prices of products with elastic demand and supply when they are affected by shifts. This is illustrated in the diagrams above. Figure 1 represents an inelastic demand curve for agricultural commodities, whereas Figure 2 represents a commodity with an elastic demand curve. Both face an identical increase in supply, (The distance between the supply curves S_0 and S_1 is equal to the distance between the supply curves S_2 and S_3.) However, as according to the supplementary laws of supply, the change in equilibrium price is greater for when the demand curve is inelastic, as compared to when it is elastic. (As we can observe, ?0?P1 is greater than ?0?P2.) The same applies for shifts in demand for when the supply curve is inelastic. This is why prices for these commodities tend to fluctuate widely from year to year. Therefore, option C is correct. Options A and D are incorrect because neither of these is a frequent enough development to cause price fluctuations on a year to year basis. Option B is incorrect because, firstly, less developed countries are usually agrarian societies, and secondly, the introduction of capital-intensive methods of production would not cause fluctuations in prices of primary commodities on a year to year basis.

6. D

As long as farmers stay on hyperbola, their price elasticity of demand is unitary and there will be no change in income of farmers with the change in supply and price. To keep farmers on hyperbola , government need to release quantity KM from the buffer stock

7. B

The PED for the firm's product is zero. This means it is perfectly inelastic. In such case, the total revenue will increase in equal proportion to increase in equal proportion to increase in price. Therefore a 5% increase in revenue.

8. D

An increase in output will result in equal increase in total revenue. Total revenue is product of price and quantity. If the increment is equal, this means that price is constant for all levels of output. That is

$$TR = P \times Q = \text{Constant (no change).}$$

9. B

As observed through diagram, the total revenue decreases as quantity increases. Total revenue to product of price and quantity as shown below.

TR = Px Q

The total revenue will decrease as long as the increase in quantity is in lesser proportion to price decrease. This situation is explained by inelastic price elasticity of demand. Hence the price elasticity of demand will be between zero and one.

10. D

An increase in output will result in equal increase in total revenue. Total revenue is product of price and quantity. If the increment is equal, this means that price is constant for all levels of output. That is

$$TR = P \times Q = \text{Constant (no change).}$$

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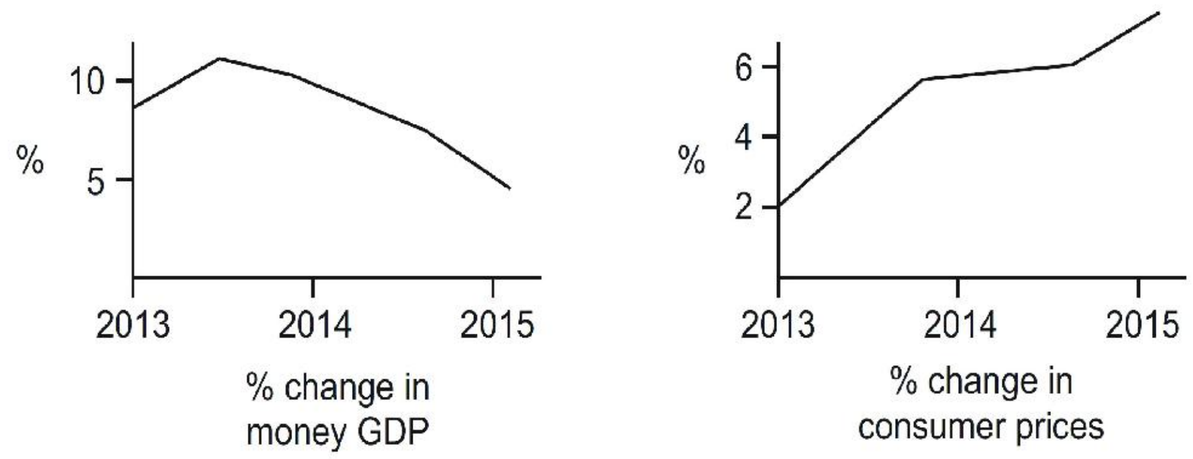
20.3 Absolute and percentage values

1. M/J 16/P31/Q20, O/N 12/P33/Q16

The graphs show percentage changes in money GDP and consumer prices in a country between 2013 and 2015.



Which conclusion can be drawn from the graphs?

A Consumer prices and money GDP both continued to rise throughout the period.

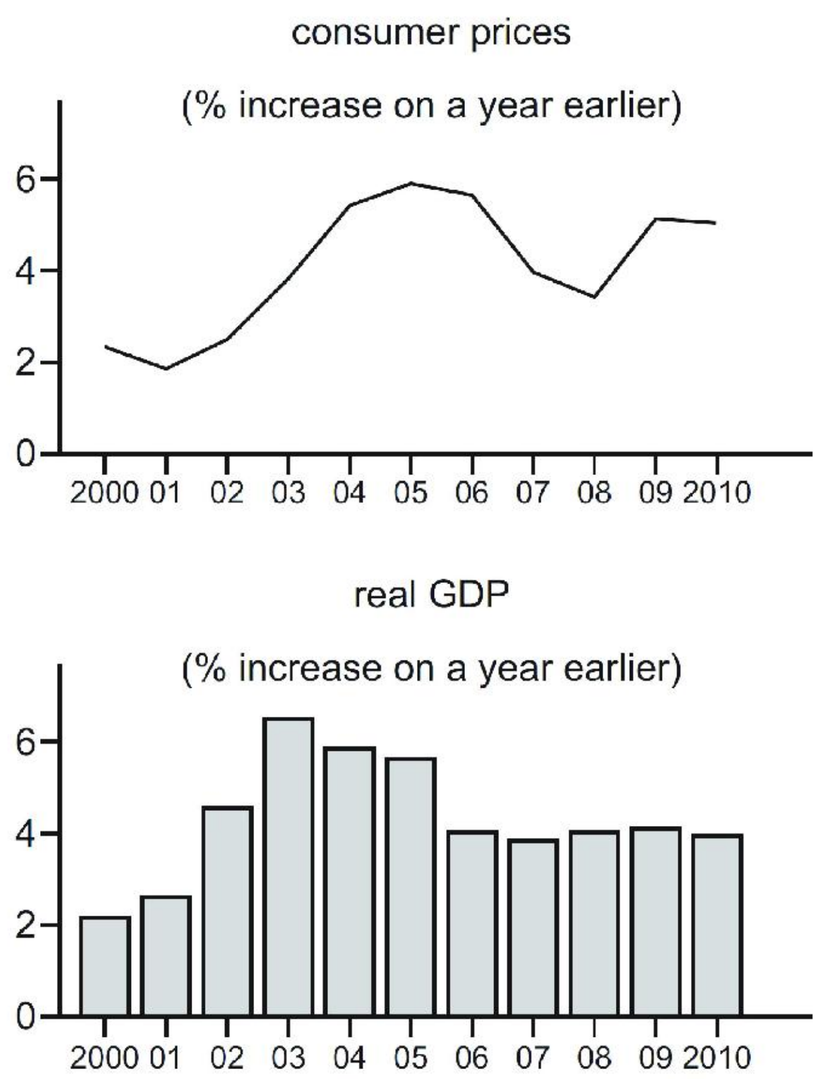
B In real terms GDP grew throughout the period.

C Money GDP fell more rapidly between 2014-2015 than between 2013-2014.

D The slowest rise in consumer prices occurred when money incomes fell.

2. M/J 15/P33/Q16, O/N 12/P31/Q16, M/J 08/P3/Q16

The graphs show how consumer prices and real GDP changed in a country between 2000 and 2010.



Which conclusion may be drawn from the graphs?

A The level of real GDP was lower in 2010 than in 2005.

B The price level fell between 2005 and 2008.

C Living standards remained roughly constant between 2000 and 2010.

D The country experienced continuous economic growth between 2000 and 2010.

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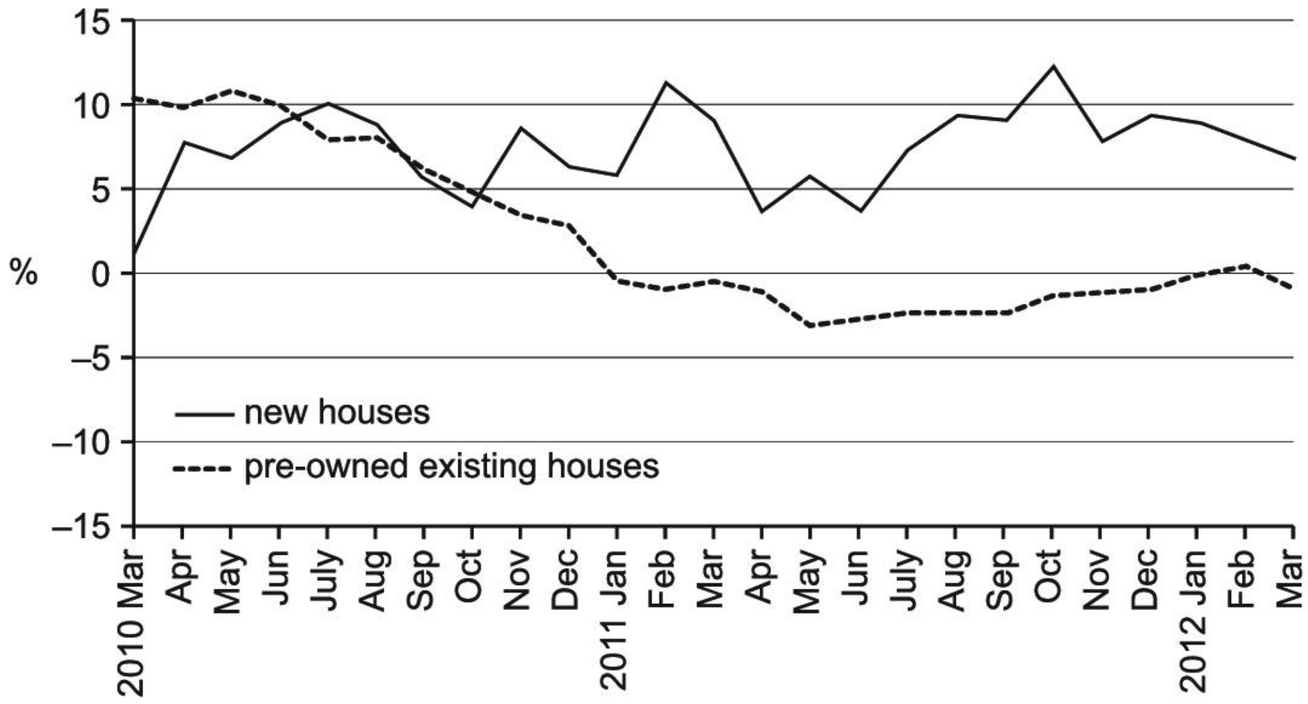
3. O/N 14/P33/Q25

The graph shows the annual percentage changes in the prices of new houses and existing houses in the United Kingdom between 2010 and 2012.



What can be concluded from the graph?

A From October 2010 new houses on average were more expensive than existing houses.

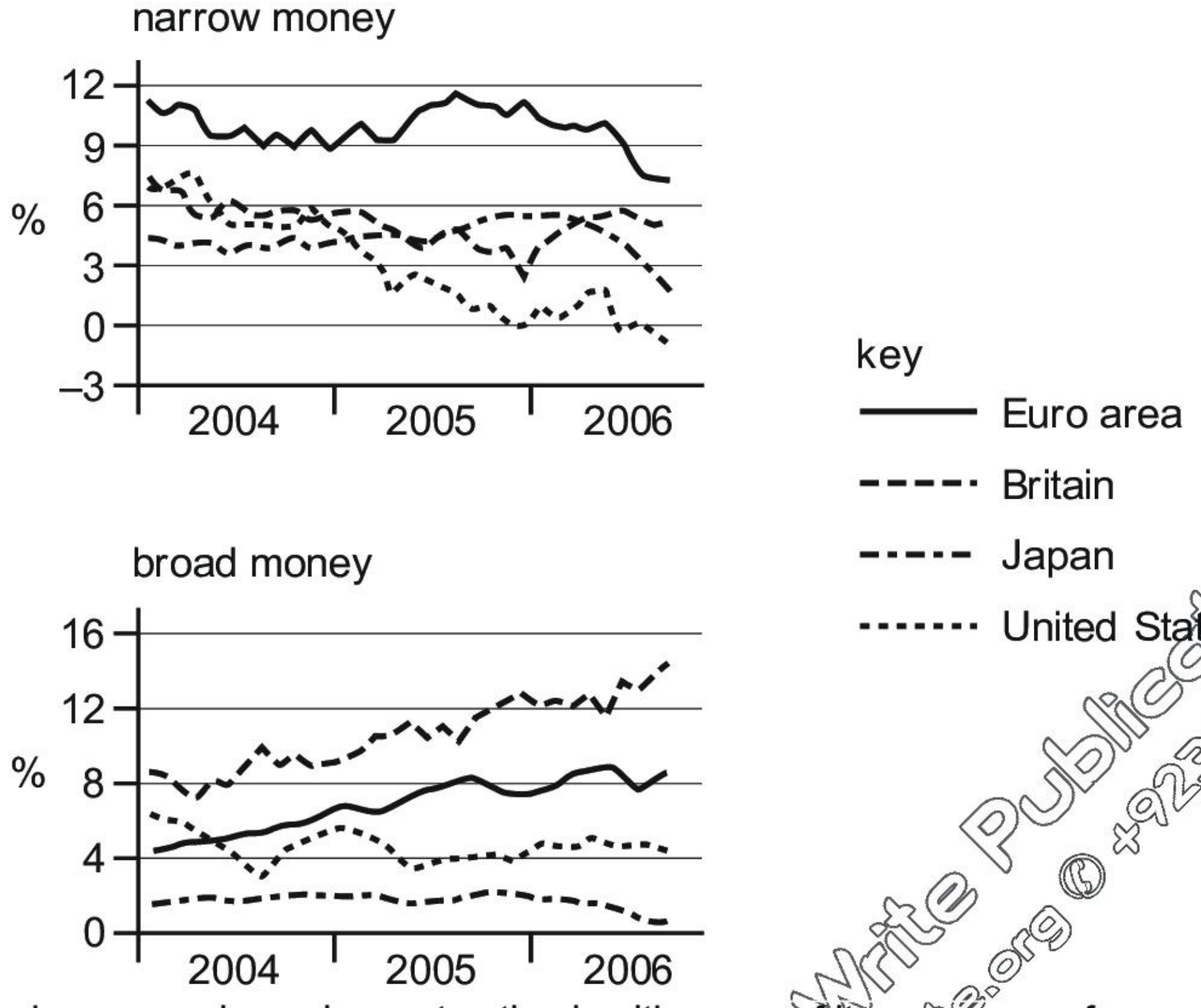
B The average price of new houses peaked in October 2011.

C The average price of existing houses was lower in May 2011 than in May 2010.

D The average price of existing houses fell to their lowest level in May 2011.

4. O/N 13/P32/Q18

The diagram shows changes in broad and narrow measures of money supply between 2004 and 2006.



Which is the only area to have experienced a contraction in either one of its measures of money supply?

A Euro area **B** Britain **C** Japan **D** United States

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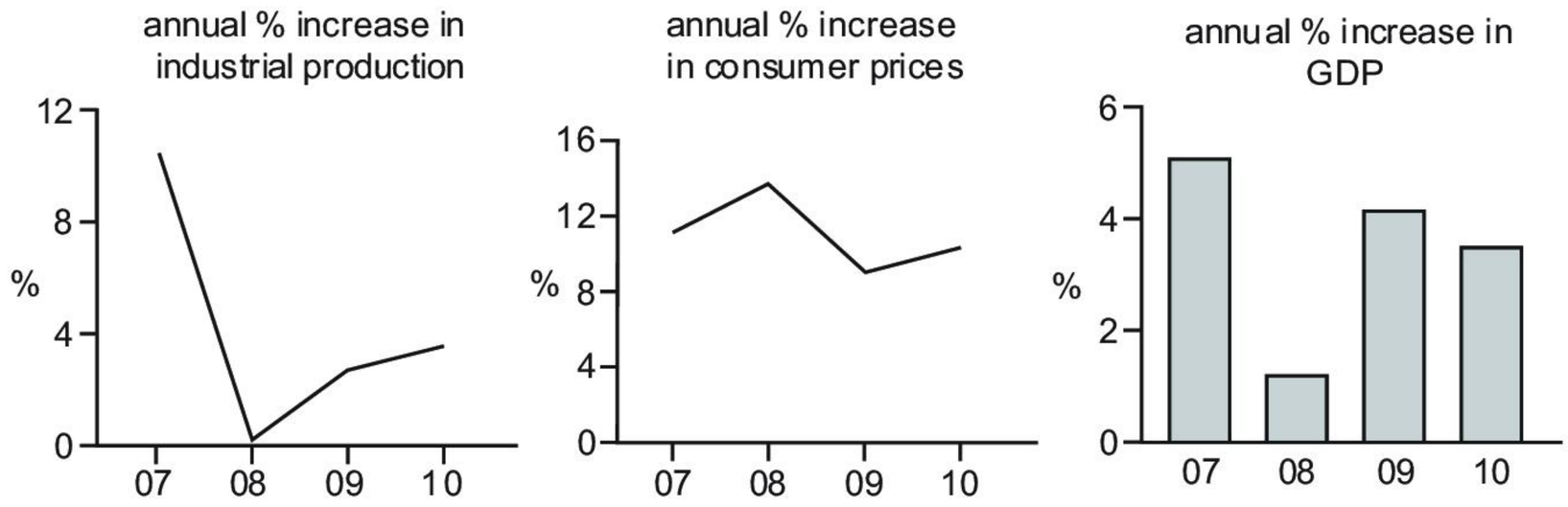
5. M/J 12/P32/Q18

The graphs indicate economic performance in a country between 2007 and 2010.



Which conclusion may be drawn from the graphs?

A Between 2007 and 2008 industrial production and GDP fell but prices rose.

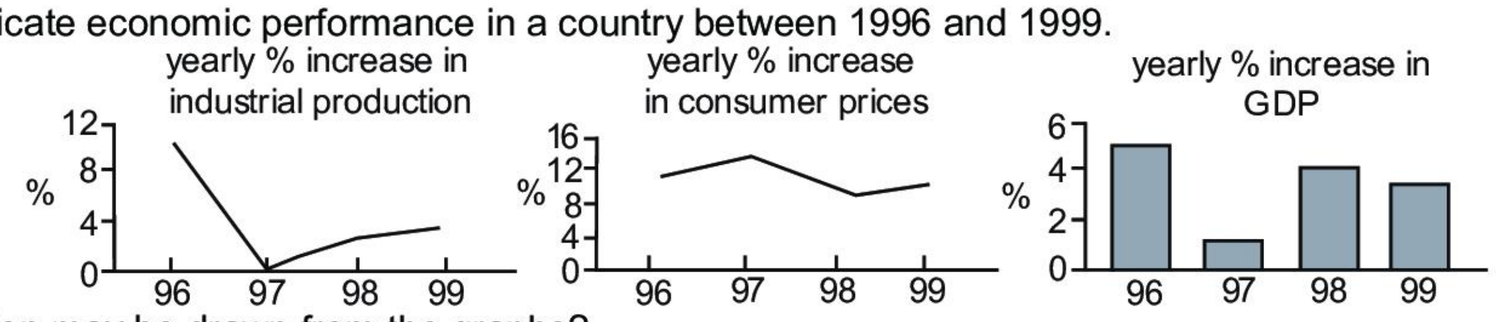
B Between 2008 and 2009 the rates of growth of industrial production, GDP and prices all increased.

C GDP and industrial production were at their lowest in 2008.

D At no time did industrial production, GDP or prices fall.

6. M/J 03,M/J 07/P3/Q18

The graphs indicate economic performance in a country between 1996 and 1999.



Which conclusion may be drawn from the graphs?

A Between 1996 and 1997 industrial production and GDP fell but prices rose.

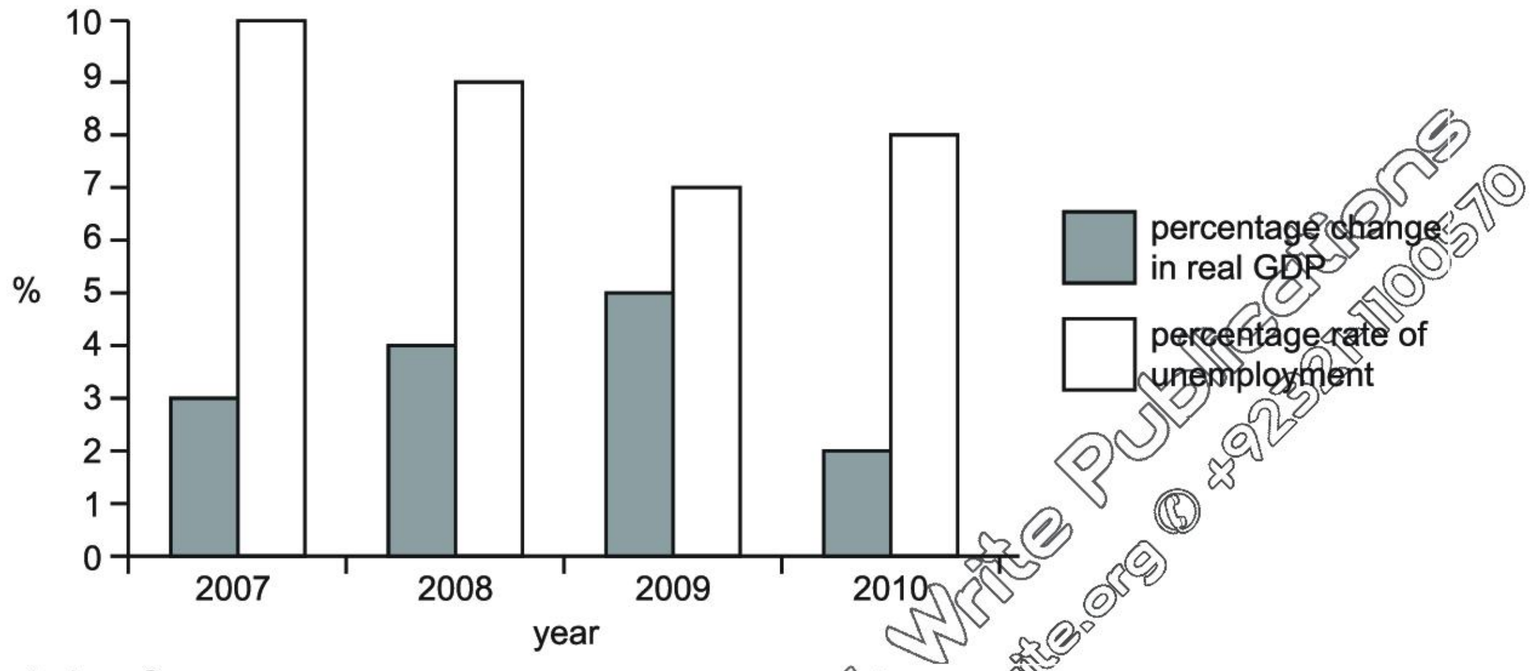
B Between 1997 and 1998 the rates of growth of industrial production, GDP and prices all increased.

C GDP and industrial production were at their lowest in 1997.

D At no time did industrial production, GDP or prices fall.

7. O/N 14/P14/Q25, O/N 11/P31/Q23, O/N 11/P33/Q22

The chart shows the rates of economic growth and unemployment in a country for the period 2007 to 2010.



What does the chart show?

A Real GDP was lowest in 2010.

B The standard of living fell between 2009 and 2010.

C The total labour force declined between 2007 and 2009.

D The unemployment rate fell when the growth rate increased.

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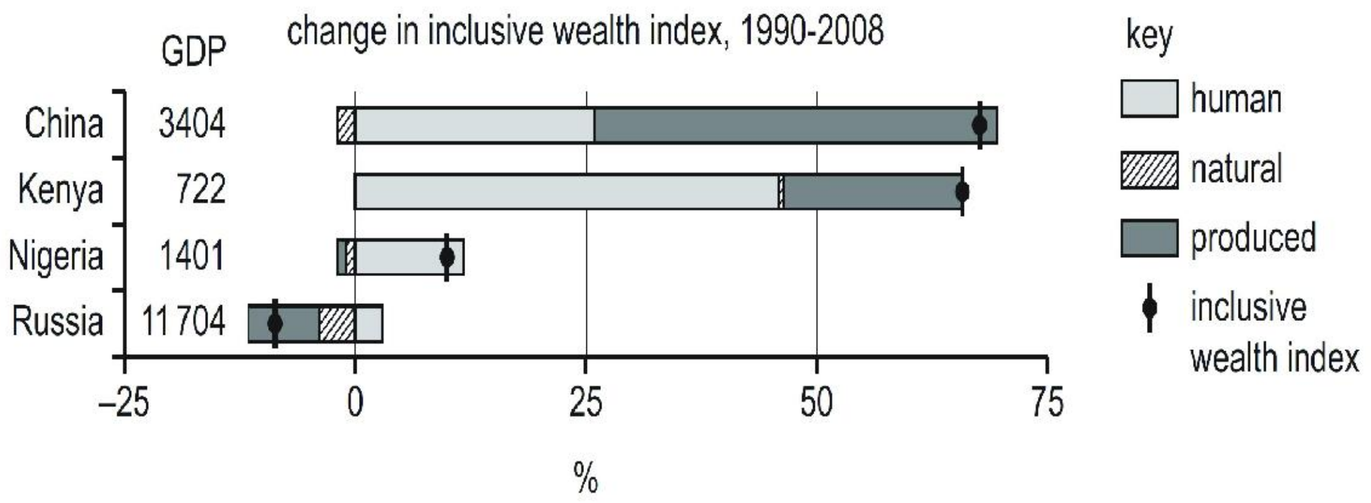
8. O/N 15/P31/Q25

The table shows government revenue and expenditure of four countries as a % of GDP in 2000 and 2010.
Which country moved from a budget deficit position in 2000 to a budget surplus in 2010?

		revenue (% of GDP)		expenditure (% of GDP)	
		2000	2010	2000	2010
A	France	50.2	49.5	51.7	56.6
B	Norway	57.7	56.7	42.3	45.5
C	Sweden	58.7	52.4	55.1	52.5
D	Switzerland	35.2	34.0	35.6	33.8

9. M/J 16/P32/Q20

In 2012 a United Nations report calculated the stock of wealth of 20 countries in terms of human, natural and produced resources. This was measured as the Inclusive Wealth Index (IWI).
The diagram shows the annual percentage (%) change in the IWI between 1990 and 2008 of the economies with the fastest and the slowest growth in IWI. It also shows their 2008 GDP per head ($).



What can be concluded from the diagram?

A A low level of GDP per head meant an inability to build stocks of wealth.

B No country was able to prevent depletion of its natural resources.

C The faster the growth in a country's IWI the higher was its GDP.

D There was an increase in human resources in all four countries.

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Answers Section

1. A

Relationship between rate of change and total value can be summarised as follows:

- As long as rate of change is positive, total value increases even if rate of change is constant or falling.
- When rate of change is zero, total value stays unchanged.
- When rate of change is negative, total value falls even if rate of change is constant or falling.
- As long as rate of change is positive, total value is lowest in first year and highest on last year.
- As long as rate of change is negative total value is highest in first year and lowest in last.

Hence as rate of change in both GDP and price level are positive throughout, therefore both GDP and price level rose throughout.

2. D

Relationship between rate of change and total value can be summarised as follows:

- As long as rate of change is positive, total value increases even if rate of change is constant or falling.
- When rate of change is zero, total value stays unchanged.
- When rate of change is negative, total value falls even if rate of change is constant or falling.
- As long as rate of change is positive, total value is lowest in first year and highest on last year.
- As long as rate of change is negative total value is highest in first year and lowest in last.

Hence as rate of change in both GDP and price level are positive throughout, therefore both GDP and price level rose throughout and country experienced continuous economic growth between 2000 and 2010.

3. C

Relationship between rate of change and total value can be summarised as follows:

- As long as rate of change is positive, total value increases even if rate of change is constant or falling.
- When rate of change is zero, total value stays unchanged.
- When rate of change is negative, total value falls even if rate of change is constant or falling.
- As long as rate of change is positive, total value is lowest in first year and highest on last year.
- As long as rate of change is negative total value is highest in first year and lowest in last.

According to diagram, prices of new houses rose in the entire period. However, prices of existing houses started falling after jan 2011 as their rate of change moved to negative part. Hence, the average price of existing houses was lower in May 2011 than in May 2010.

4. D

Relationship between rate of change and total value can be summarised as follows:

- As long as rate of change is positive, total value increases even if rate of change is constant or falling.
- When rate of change is zero, total value stays unchanged.
- When rate of change is negative, total value falls even if rate of change is constant or falling.
- As long as rate of change is positive, total value is lowest in first year and highest on last year.
- As long as rate of change is negative total value is highest in first year and lowest in last.

As can be observed in the graph for narrow money, the United States is the only one for whom the change in money supply has gone below 0%; therefore, the answer is option D.

5. D

Relationship between rate of change and total value can be summarised as follows:

- As long as rate of change is positive, total value increases even if rate of change is constant or falling.
- When rate of change is zero, total value stays unchanged.
- When rate of change is negative, total value falls even if rate of change is constant or falling.
- As long as rate of change is positive, total value is lowest in first year and highest on last year.
- As long as rate of change is negative total value is highest in first year and lowest in last.

The important aspect of these graphs are to consider that they measure % increase in stats, so even if the rate of growth falls, the size still increases. So only option D is correct, since neither of these figures fell in these years.

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6. D

All three graphs show the yearly % increase—these are rates of growth, not actual figures for industrial production, GDP, or prices; this infers that industrial production, GDP, and prices are all measured here as a percentage relative to what they were in a preceding year. Unless any of the graphs go into the negative—which they do not—there is no fall in industrial production, GDP, or prices; thus, option D is correct. Option A is wrong because, as explained in the answer explanation for the correct option (D), none of industrial production, GDP, or prices is falling at any point in the graph. Furthermore, although the actual amounts for industrial production, GDP, and prices did not fall at any point, the 'rates of growth' as shown by the graphs did decrease. Between 1997 and 1998, prices fell, so the statement in option B is incorrect. There has been no decrease in the actual measures for industrial production, GDP, or prices; option C is incorrect.

7. D

Relationship between rate of change and total value can be summarised as follows:

- As long as rate of change is positive, total value increases even if rate of change is constant or falling.
- When rate of change is zero, total value stays unchanged.
- When rate of change is negative, total value falls even if rate of change is constant or falling.
- As long as rate of change is positive, total value is lowest in first year and highest on last year.
- As long as rate of change is negative total value is highest in first year and lowest in last.

Hence, D is correct answer which states that unemployment rate fell when the growth rate increased.

8. D

Government budget is the difference between tax revenue and government spending. In 2000, Switzerland had tax revenue 35.2% of GDP and government spending 35.6% of GDP which means it was experiencing budget deficit (T<G). In 2010, Switzerland had tax revenue 34% of GDP while government spending was 33.8 % of GDP which means budget surplus (T>G). Hence D is correct answer.

9. D

Relationship between rate of change and total value can be summarised as follows:

- As long as rate of change is positive, total value increases even if rate of change is constant or falling.
- When rate of change is zero, total value stays unchanged.
- When rate of change is negative, total value falls even if rate of change is constant or falling.
- As long as rate of change is positive, total value is lowest in first year and highest on last year.
- As long as rate of change is negative total value is highest in first year and lowest in last.

Hence, D is correct answer which states that there was an increase in human resources in all four countries.

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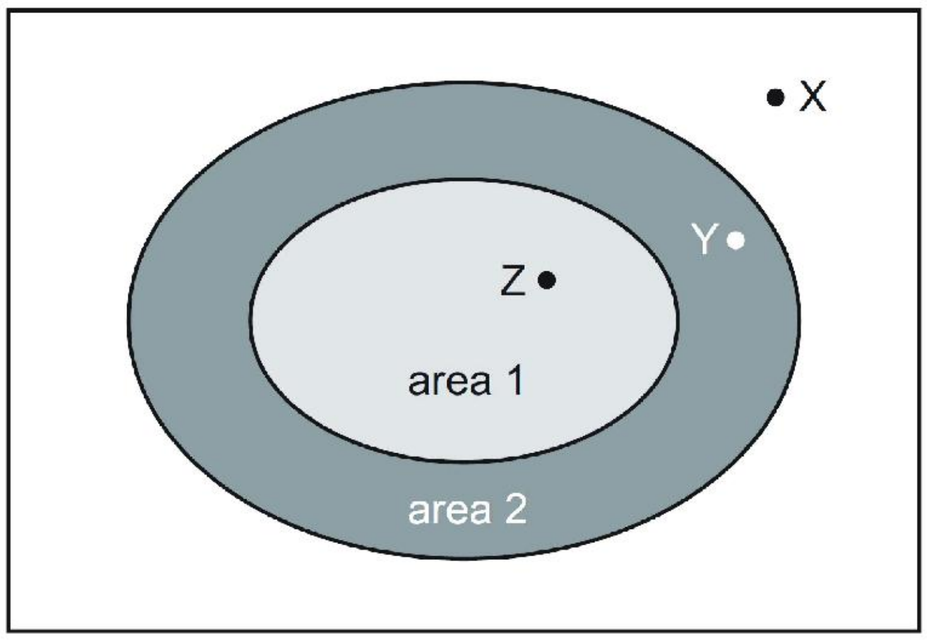
20.4 General questions

1. O/N 15/P31/Q15

At present, motorists who drive their cars within area 1 on the map pay a daily congestion charge of $8. However, motorists who live within the congestion charge zone are eligible for a 90% discount.



Which car journeys would decrease in number if the congestion zone area were extended to include area 2?

A journeys from point X to point Z
B journeys from point Y to point X
C journeys from point Y to point Z
D journeys from point Z to point Y

2. O/N 14/P14/Q14

In many countries, laws exist which prohibit firms from copying innovations introduced by other firms.
What is the economic reason behind these laws?

A A degree of monopoly power can help to achieve allocative efficiency.
B A degree of monopoly power may be helpful in achieving technical progress.
C Research and development is best conducted by government organisations.
D The prices of goods produced by monopolies need to be regulated.

3. O/N 13/P33/Q15

What is most likely to occur when a command economy makes the transition towards becoming a market economy?

A an increase in unemployment in the short run
B a slower response to changes in technology
C a decrease in the production of consumer goods
D a decrease in the productivity of workers

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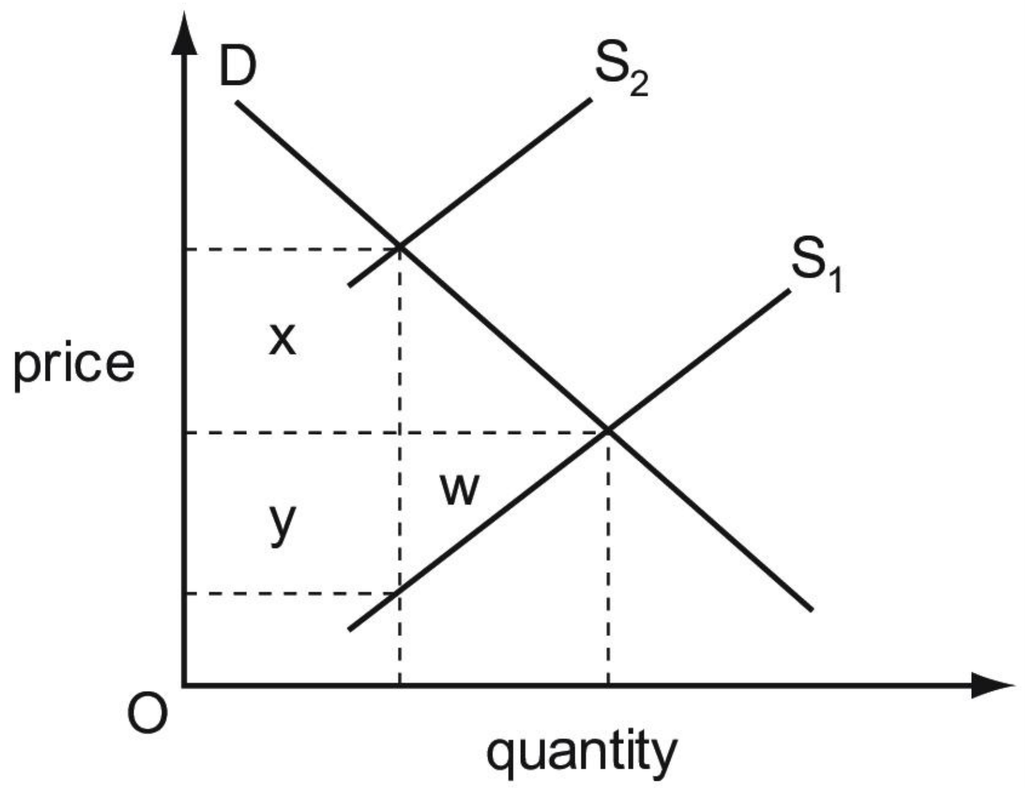
4. O/N 12/P31/Q28

In the diagram D is the demand curve for Indian tea exports and S_1 is the initial supply curve.

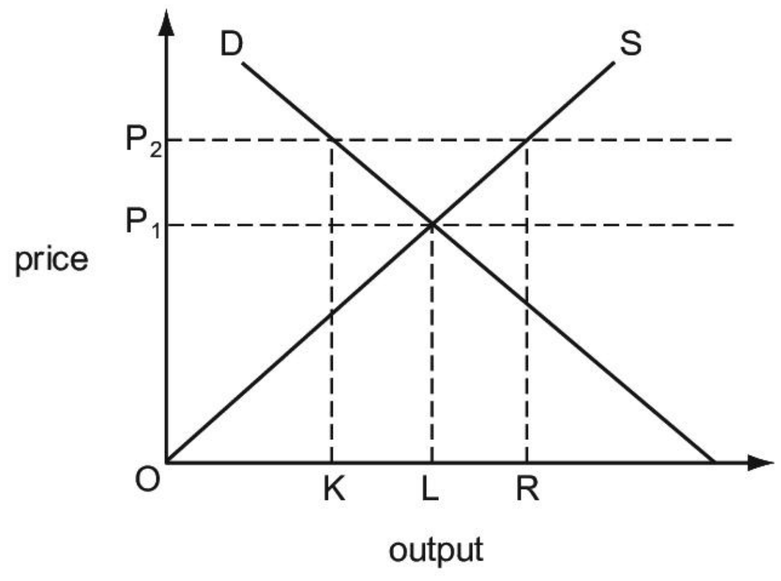


The Indian government imposes a tax on tea exports, which causes the supply curve to shift to S_2.
Which areas in the diagram measure the resulting gain in tax revenue to the Indian government and the resulting loss in producer surplus to its tea producers?

	gain in tax revenue	loss in producer surplus
A	x	w + y
B	x + y	y
C	x	y
D	x + y	w + y

5. M/J 13/P32/Q16, O/N 12/P31/Q15, M/J 04/P32/Q15

The diagram shows the market supply and demand curves for corn.
What should a government do if it is to maintain a minimum price of OP_2?



A buy quantity KR **B** buy quantity LR **C** sell quantity KL **D** sell quantity OL

6. O/N 11/P31/Q12, O/N 11/P33/Q11

The Chinese government is increasing the role of market forces in its economy. However, in 2008 it imposed temporary maximum price controls on energy and transport.
Why might a government, committed to reducing central planning, introduce price controls?

A to increase allocative efficiency
B to increase the incentive for producers to raise supply
C to reduce consumer demand
D to reduce expectations of inflation

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7. Mar 18/P32/Q13, M/J 11/P32/Q11

A government imposes a maximum price for electricity.
Which statement justifying this measure might be considered valid on economic grounds?

A It will encourage electricity suppliers to invest in additional capacity.

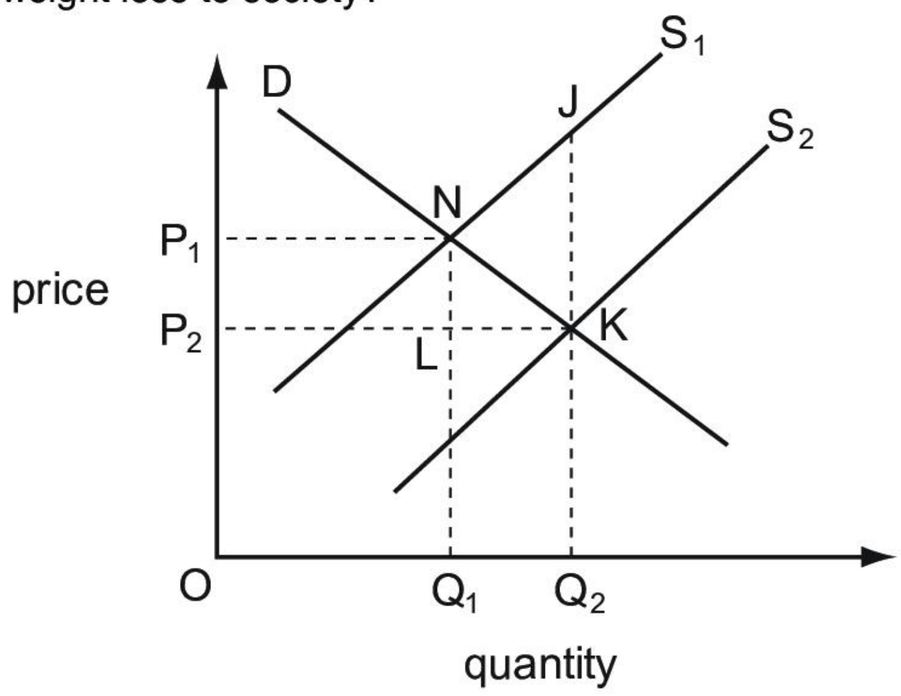
B It will increase the incentive for consumers to conserve energy.

C It will prevent the monopolistic exploitation of consumers.

D It will prevent the rationing of electricity through power cuts.

8. M/J 09/P32/Q14

In the diagram the introduction of a government subsidy causes an industry's supply curve to shift from S_1 to S_2.Which area measures the resulting deadweight loss to society?



A P_1NKP_2 **B** JKN **C** NLK **D** Q_1Q_2JN

9. M/J 08/P3/Q15

A government decides to privatise a state monopoly.
What should the government do to try to ensure that this will result in an improvement in efficiency?

A allocate vouchers to all citizens entitling them to a share in the ownership of the monopoly

B encourage competition

C impose a maximum profit margin

D privatise the monopoly as a going concern

10. O/N 07/P3/Q16

What should an industry regulator control if it wishes to provide an incentive for a privatised firm to improve its productive efficiency?

A dividends **B** output **C** prices **D** profits

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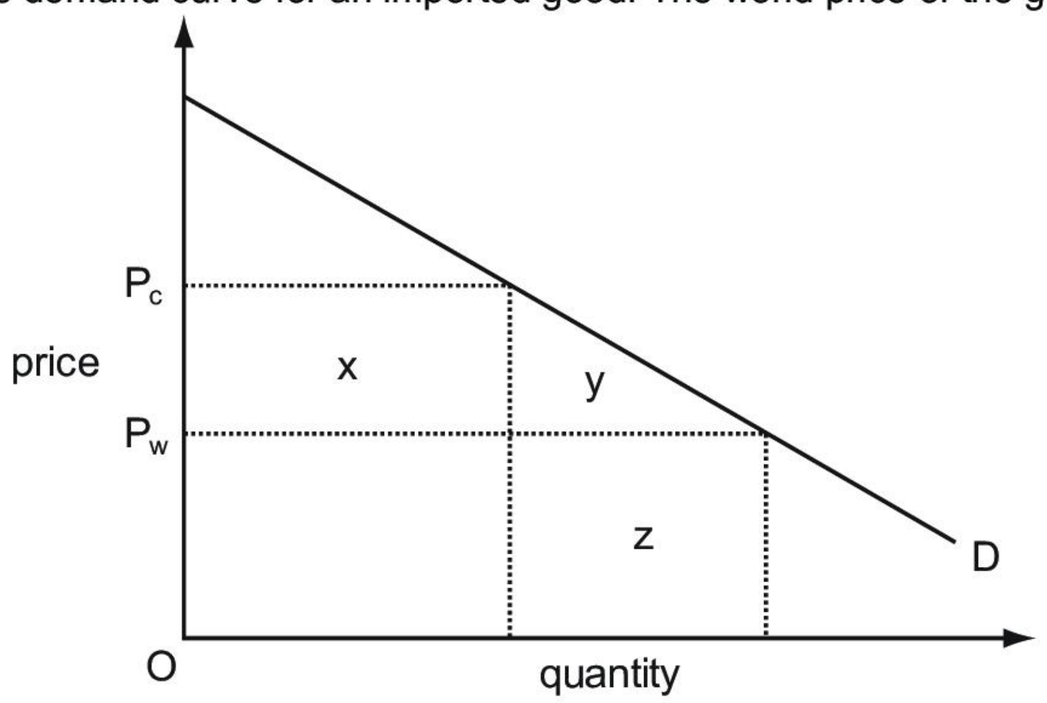
11. M/J 05/P3/Q15

In the diagram D is a country's demand curve for an imported good. The world price of the good is OPW.



Which area measures the deadweight loss to the country of imposing an import tariff equal to PW PC on the good?

A x **B** y **C** x + y **D** y + z

12. O/N 05/P3/Q15

Which area of skill possessed by the managers of government-owned enterprises in a planned economy is less relevant when industries are privatised?

A financial management
B marketing
C production targeting
D stock quality and control

13. M/J 03/P3/Q17

The government of a centrally planned economy decides to replace central planning with a market system.
What does the experience of the former Communist states suggest is likely to happen in the early stages of the transition process to national output and to the inflation rate?

	national output	inflation rate
A	decrease	decrease
B	decrease	increase
C	increase	increase
D	increase	decrease

14. O/N 96/P3

A government pays investment grants equal to 25% of expenditure on plant and equipment to firms investing in certain designated areas.
When might this lead to a reduction in the number employed in these areas?

A There is a high degree of geographical mobility of capital.
B There is a high degree of outwards labour mobility from these areas.
C There is a high degree of substitutability between capital and labour.
D wage rate differentials between different geographical areas are negligible.

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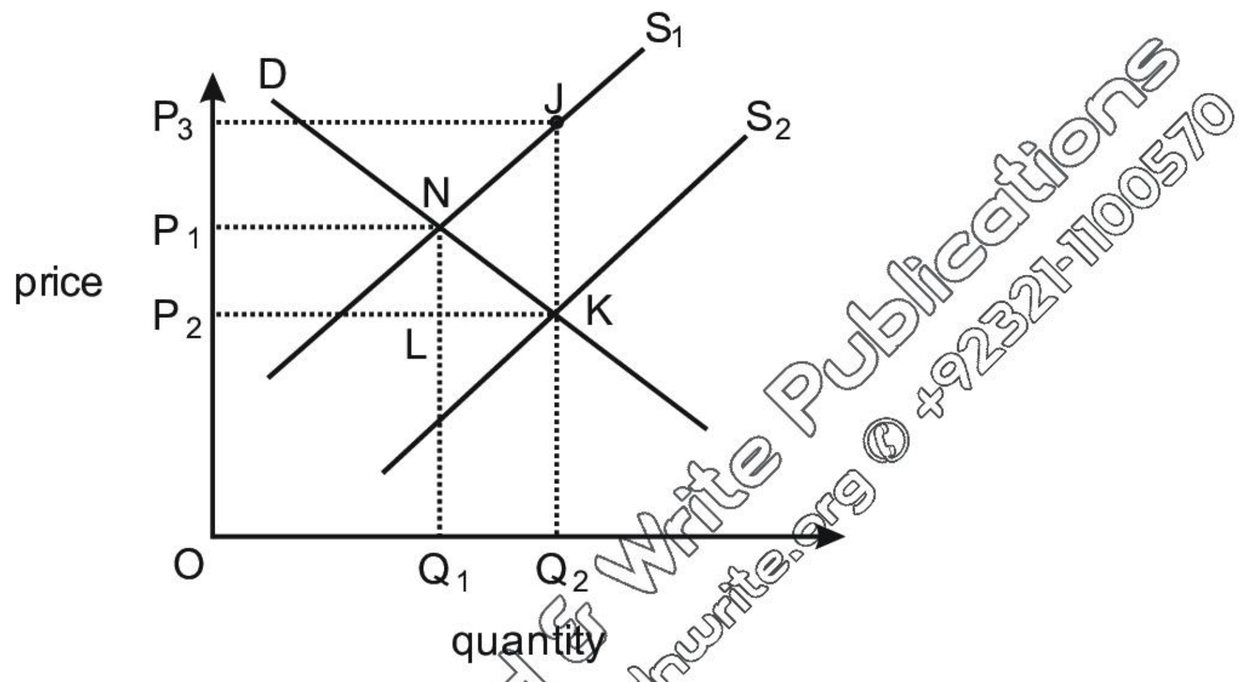
Answers Section

1. B
2. B
   Laws which prohibit firms from copying innovations introduced by other firms may be helpful in achieving technical progress and dynamic efficiency, hence, B is correct answer.
3. A
   Immediately there will be no supply chains and greater risks which will reduce the level of production and therefore leads to more unemployment in short run.
4. D
   Tax revenue will be x+y. Producer surplus y will be transferred to tax revenue and w will be dead weight loss out of producer surplus. Hence, total producer surplus that is lost will be w + y.
5. A
   At price P_2 quantity demanded OK whereas quantity supplied OR, since quantity is greater than quantity demand, there is a surplus in the market. Because there are more goods in the market then can be sold, the government must buy quantity KR, to buy all of the excess quantity. So option A is correct.
6. D
   Price controls reduce expectations of inflation and therefore D is correct answer.
7. C
   A 'maximum price' is an act of the state, where government legislation sets a price ceiling which producers must not exceed when pricing a particular commodity; it is a form of government intervention intended to protect the consumers from exploitation, especially in the case where the commodity concerned is a necessity. A monopoly situation is when there is only a single seller in an industry, allowing the monopolistic firm to charge exorbitant prices for its commodities. Whether electricity is defined as a 'need' or not can be argued, but it goes without saying that, in most economies, electricity is an extremely important commodity. Thus, to prevent exploitation by a monopolistic supplier of electricity, the government sets a maximum price to make electricity affordable; therefore, option C is the answer. Options A and B are wrong because there is no reason why a maximum price would make electricity suppliers want to invest in additional capacity or increase the incentive for consumers to conserve energy. Regarding option D: The rationing of electricity through power cuts would only occur when there is a limited supply of electricity. A maximum price set below the equilibrium price would actually cause a shortage (or excess demand) since suppliers would not be willing to supply enough at that price to cover all the effective demand. This would possibly cause the supplier to resort to non-market allocations like rationing electricity through power cuts, and, thus, will not prevent it. This option is not the answer.
8. B



Total subsidy expenditure = P_3JKP_2
Part of Subsidy added to producer surplus = P_3JNP_1
Part of Subsidy added to consumer surplus = P_1NKP_2
Hence dead weight loss of subsidy = NJK

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9. B
Encouraging competition will reduce the ability of monopoly to exploit and therefore improves the efficiency in the market.

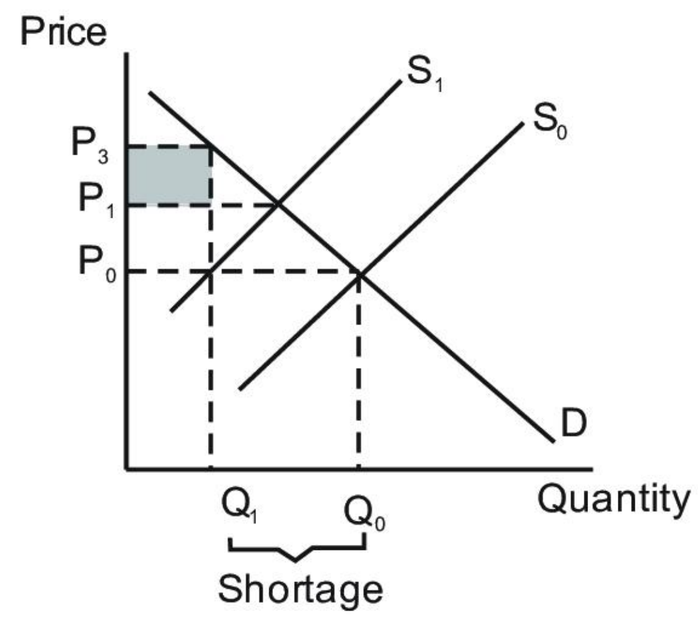
10. C
Productive efficiency can be achieved by controlling prices which will in turn control outputs, dividend and profits.

11. B
By imposing tax of P_wP_c, consumer surplus will fall by area x + y. Area 'y' will be the deadweight loss, where as 'x' will be collected in tax revenue.

12. C
A 'planned economy' is an economy in which decisions regarding production, investment, prices, and incomes are determined centrally by a government. One of the aims of firms in a planned economy is to fulfill production quotas so that they are consistent with the overall production budget for the country. Failure to fulfill these quotas can result in some very problematic shortages (students can read examples of these by studying the history of the USSR or Eastern Europe). However, in a privatized industry, there is no longer an obligation to adhere to the production budget for the entire country—just to fulfill production quotas for the industry's market share. Thus, the skill of production targeting is less relevant when an industry operates in the private sector as compared to when it operates in the public sector. This makes option C correct. Options A and B are incorrect because a manager still has to possess these skills, regardless of whether the firm he or she is employed to operates in the public or the private sector. Option D is incorrect because although stock quality and control often fails to be maintained in planned economies, it is still an important and entirely relevant feature regardless of whether the industry operates in the private or the public sector.

13. B
Usually, the governments in Communist states would impose price controls to keep prices low and affordable for the general public. Since there was no profit motive in these economies, there was no reason to charge higher prices. A shift to the market system, however, would cause prices to rise, since private enterprise and the aim of higher profits would encourage firm's to charge higher prices; this would cause the inflation rate to increase. In the early stages of the transition, there will be a lack of experienced entrepreneurs willing to risk their investment to establish firms. This would cause a decrease in production and, by extension, in national output. Thus, the answer is B. The rest of the options are all incorrect because they do not state together a decrease in national output and an increase in the inflation rate.

14. C
According to option C, it shows that there is high substitutability between the two factors of production. So, when capital increases by 25% the resources from labour are easily shifted to capital which leads to unemployment of labour.



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March 2017 Paper 32

1 What might help achieve allocative efficiency?

A differentiated products **B** government subsidies
C monopsony **D** supernormal profits

2 In 2015, a company electrified the main railway line between two cities in order to decrease the journey time. The work was noisy, expensive and took a long time.
What would be the likely outcome of this project?

A External costs increased and private benefits decreased.
B Private benefits decreased and external cost decreased.
C Private benefits increased and private costs increased.
D Private costs increased and external costs decreased.

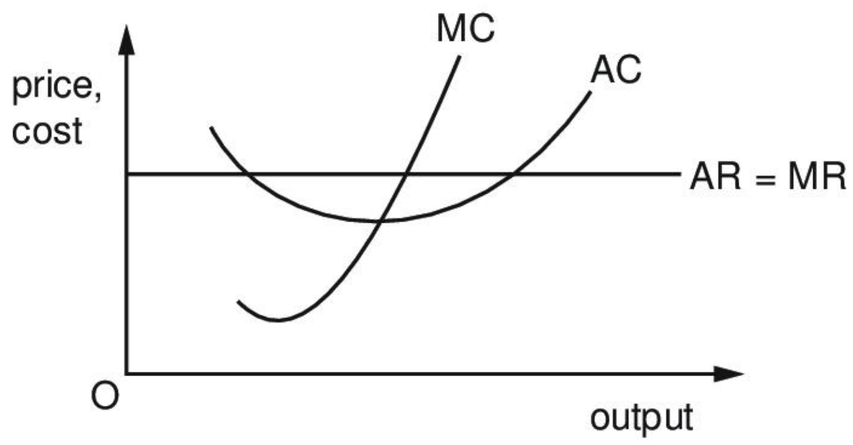
3 Which measure is specifically designed to reduce divergences between private and social costs?

A equal pay legislation
B minimum wage legislation
C the abolition of tuition fees paid by university students
D the introduction of 'bus only' lanes in city centres

4 Which is an internal economy of scale?

A efficient local transport networks
B improved access to spare parts as a result of industry growth
C lower risks from supplying a wider range of customers
D the training of skilled labour at a college financed by local firms

5 The diagram shows the position of a profit-maximising firm in a perfectly competitive industry.



What is the correct analysis of this position?

	profits in short run	number of firms in the industry in the long run
A	supernormal	decrease
B	supernormal	increase
C	normal	remain the same
D	subnormal	decrease

6 When a firm doubles its variable inputs, its fixed inputs are unchanged and output less than doubles.
What does this illustrate?

A decreasing average cost **B** decreasing marginal cost
C diminishing returns **D** diseconomies of scale

7 Which practices would be classified as price discrimination?

	charging higher rail fares to meet the additional costs of train companies	charging lower return flight fares from Kuala Lumpur to Hong Kong for passengers who stay overnight on a Saturday in Hong Kong
A	no	no
B	no	yes
C	yes	no
D	yes	yes

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8 To maximise total revenue, up to which point should a monopolist increase output?

A where marginal revenue equals average revenue
B where marginal revenue is maximised
C where marginal revenue is zero
D where price elasticity of demand is zero

9 A firm is operating in perfect competition.
What will be the effect on the firm's revenue if it increases its output by 5 %?

A Its revenue will be unchanged.
B Its revenue will increase by 5 %
C Its revenue will increase by less than 5 %.
D Its revenue will increase by more than 5 %.

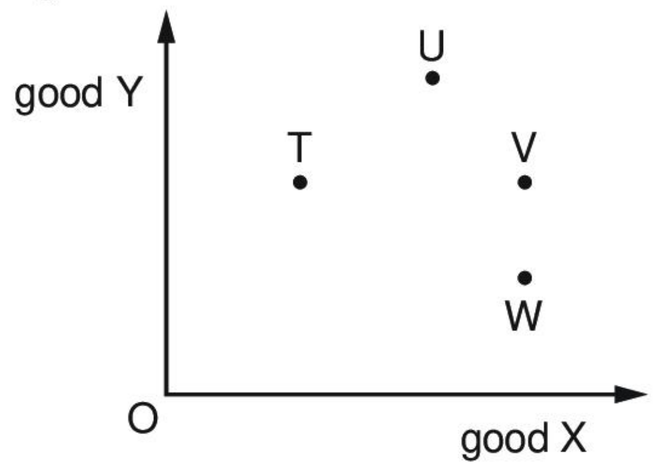
10 A firm successfully engages in a policy of predatory pricing.
What will happen to the prices charged by the firm in the short run and in the long run?

	prices in the short run	prices in the long run
A	rise	rise
B	rise	fall
C	fall	rise
D	fall	Fall

11 What will act as a barrier to collusion between firms?

A an ability to detect price cuts by rivals
B the abolition of anti-trust measures
C the existence of a small number of firms in the industry
D unstable demand conditions for products

12 The diagram represents different combinations of good X and good Y.
A consumer prefers more units of both goods to fewer units but prefers, as far as possible, not to give up any of good Y to obtain more of good X.



Which combination in the diagram could represent the consumer's order of preference in descending order?

A UTVW **B** UVTW **C** TUVW **D** WVUT

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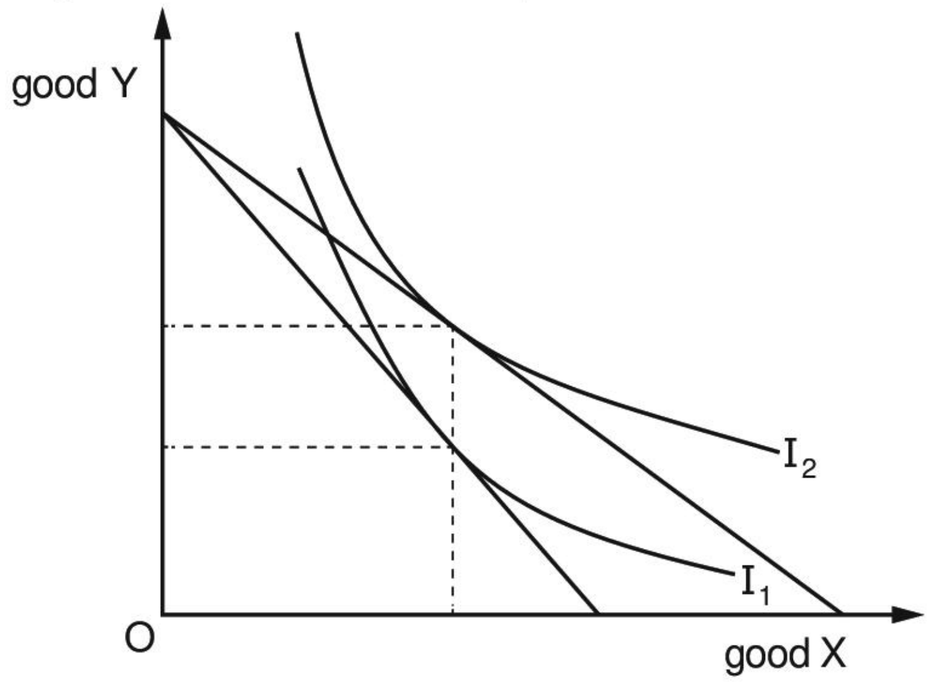
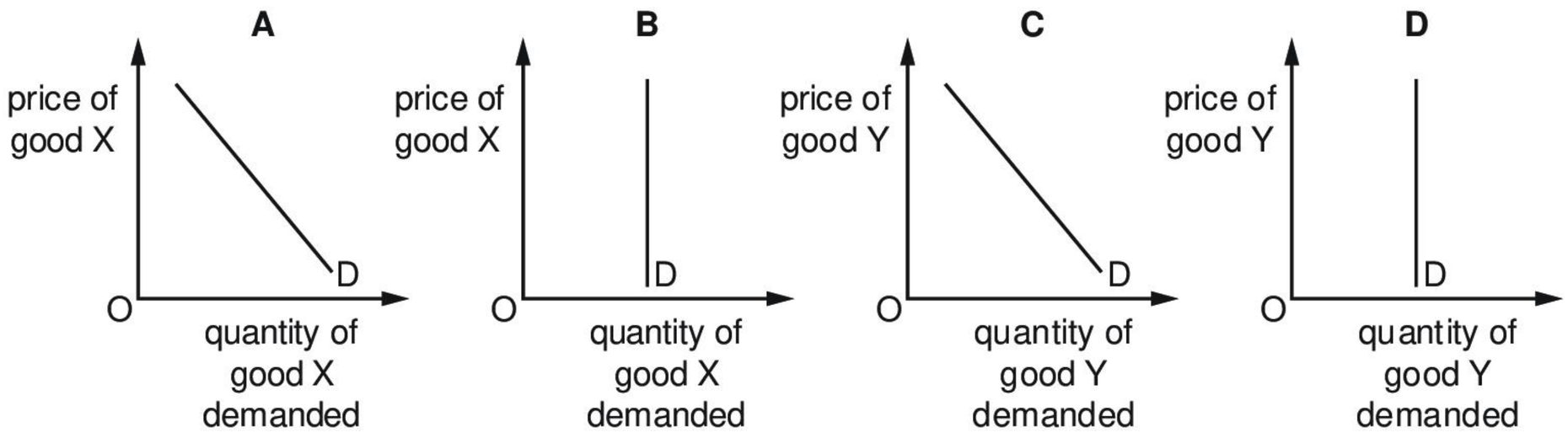
13 A consumer demands two goods, X and Y. The indifference curve diagram shows the effect of a change in the price of one of these goods on the consumer's equilibrium.



Which demand curve can be deduced from the diagram?



14 What could prevent a market failure?

A barriers to entry **B** building regulations
C growth of firms **D** persuasive advertising

15 The diagram shows the Gini coefficient for four countries between 1975 and 2010.

Which country made the greatest move towards a more equal income distribution over the period?

A Brazil **B** China **C** India **D** Mexico

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16 Extra fishing boats start to operate from a local harbour which depends on fishing for its main income. Which action by the local authority is an example of nudge theory?

A distributing leaflets about the need to safeguard fish stocks
B increasing the licence fees for new boats
C insisting that all fish caught are sold to local people
D restricting the areas in which boats can fish

17 What is the main disadvantage of government regulation aimed at restricting the profits earned in a monopolistic industry?

A It acts as a disincentive to innovation.
B It cannot take account of externalities.
C It leads to diseconomies of scale.
D It leads to excessive advertising by firms.

18 What is an advantage of a 'creation of property rights' solution to externalities resulting from river pollution?

A It allows the possibility of a claim for compensation to those harmed.
B It always makes the polluter pay for pollution caused.
C It results in better monitoring by the government of the damage from pollution.
D It will eliminate pollution completely.

19 In the UK in 2015 the average wage was £26 500 a year. At the same time, certain footballers were earning more than £150 000 a week.
Which aspect of the theory of wage determination is most likely to explain this wage differential?

A aggressive wage bargaining by the professional footballers' trade union
B the inclusion in wages of an element of economic rent
C the monopsony structure of the market for professional footballers
D the theory of net advantages

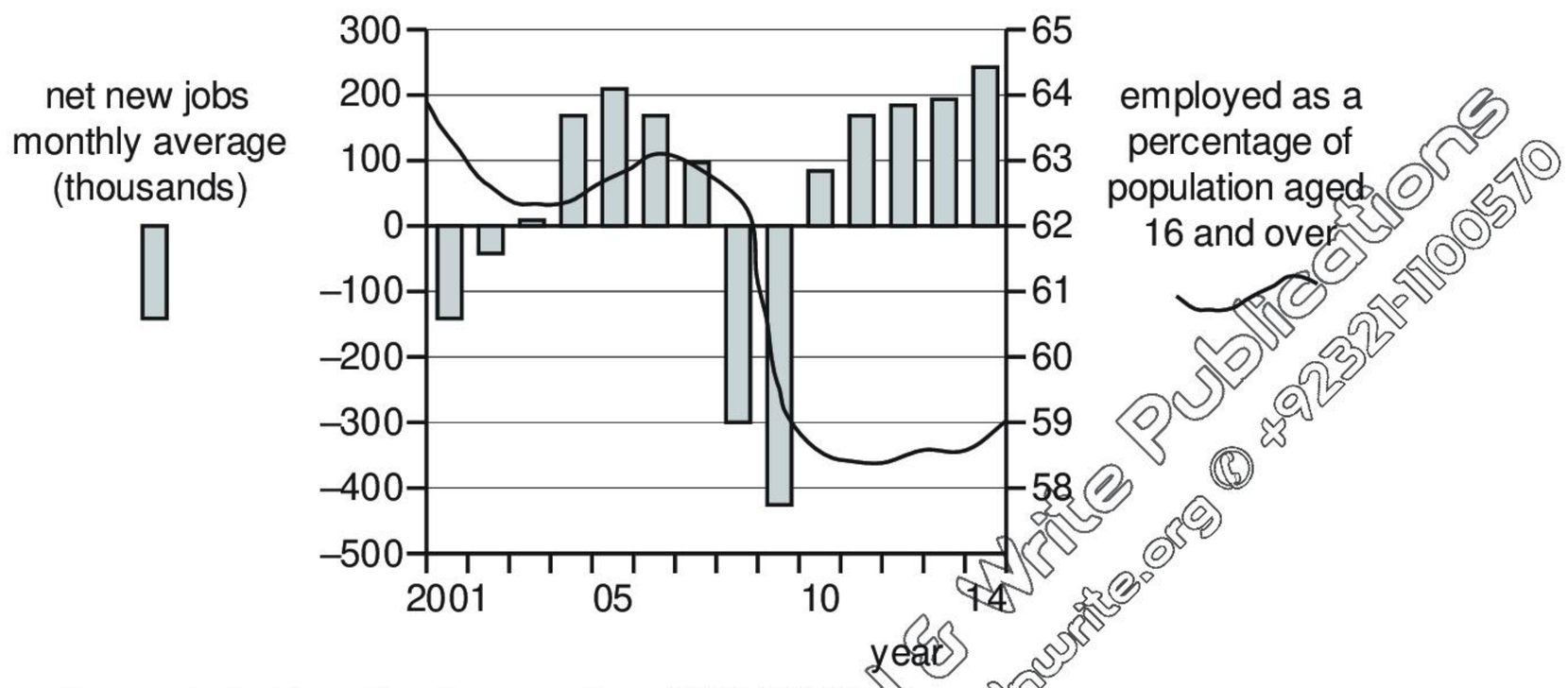
20 What is the most effective policy a government could introduce to reduce frictional unemployment?

A cut welfare spending on benefits
B improve information about job vacancies
C reduce tax rates
D raise interest rates

21 Which combination is usually found in the least developed countries?

A a high birth rate and a dominant primary sector
B capital-intensive production and a low rate of saving
C labour-intensive production and a declining population
D net inward migration and a low death rate

22 The diagram shows selected US labour statistics from 2001 to 2014.



What can be concluded from the diagram about 2001-2014?

A Employment as a percentage of the population aged 16 and over declined continuously.
B In periods when the number of net new jobs was rising the percentage employed increased.
C The natural rate of unemployment was achieved only in 2008.
D The number of unemployed workers fell in all except four years.

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23 Under conditions of full employment, the Quantity Theory of Money suggests that (other things being equal) the effect of an increase in the velocity of circulation will be to increase

A output. **B** prices.
C the demand for money. **D** the quantity of money.

24 In a closed economy with neither government expenditure nor taxation, the initial income is $2000 million. All savings are carried out by consumers, who save 25 % of any income received above $2000 million. Businesses plan to invest $2000 million.
What is the value of the multiplier?

A 5 **B** 4 **C** $\frac{4}{3}$ **D** $\frac{3}{4}$

25 Which combination of factors is most likely to result in economic growth?

A an increase in management productivity together with a reduction in the hours worked per employee
B increased educational enrolment together with an increase in business regulation
C the discovery of a new raw material deposit together with significant emigration of labour
D the invention of a technology together with the investment to use it in the economy

26 A country's real national income per head increases.
What could explain why this might be accompanied by a fall in households' standard of living?

A a decrease in state welfare payments **B** a decrease in the working age population
C an increase in the trade deficit **D** an increase in the consumer price index

27 A director becomes redundant as the result of a company merger. His salary was $80 000. He is entitled to an annual private pension of $30 000.
In his first year after redundancy he earns $40 000 in consultancy fees and saves $8000 by dismissing his gardener.
What is the resulting change in measured national income in the first year?

A + $70 000 **B** + $60 000 **C** - $80 000 **D** - $18 000

28 Which cause of economic growth would involve the least cost for present and future generations of a country's population?

A increased exploitation of a country's mineral resources
B investment financed by borrowing from abroad
C investment financed by high rates of domestic savings
D technological innovations in productive processes

29 What would encourage industrial expansion in a region of high unemployment?

A a rationing system for building development in that region
B a reduction in tax allowances on investment
C a requirement that only local labour may be employed
D an end to nationally negotiated wage rates

30 A government currently has a balanced budget. It is considering the possible variations in tax revenue and government expenditure shown.

options	tax revenue	government expenditure
W	increase	increase
X	increase	reduce
Y	reduce	increase
Z	reduce	reduce

Which three options are likely to have the potential to move the budget into surplus?

A W, X and Y **B** W, X and Z **C** W, Y and Z **D** X, Y and Z

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Answer Key

1	**B**	9	**B**	17	**A**	25	**D**
2	**C**	10	**C**	18	**A**	26	**A**
3	**D**	11	**D**	19	**B**	27	**D**
4	**C**	12	**B**	20	**B**	28	**D**
5	**B**	13	**B**	21	**A**	29	**D**
6	**C**	14	**B**	22	**B**	30	**B**
7	**B**	15	**D**	23	**B**		
8	**C**	16	**A**	24	**B**		

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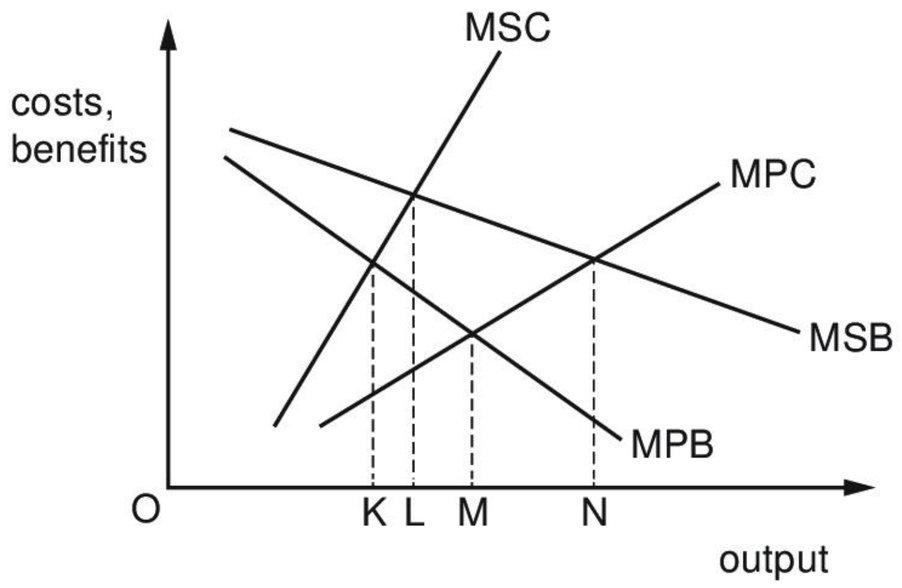
June 2017 Paper 32

1 When will an economic activity create a net social benefit?

A when (private benefit + external benefit) – (private cost + external cost) is negative
B when (private benefit + external benefit) – (private cost + external cost) is positive
C when (private benefit + private cost) – (external benefit + external cost) is negative
D when (private benefit + private cost) – (external benefit + external cost) is positive

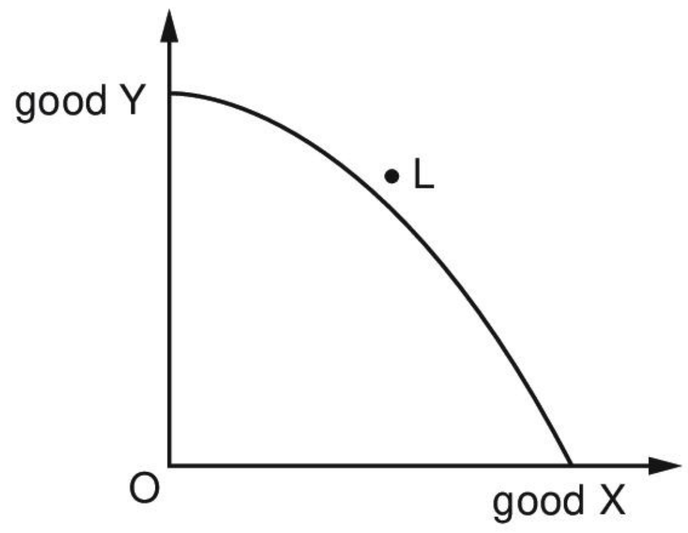
2 The diagram shows the private and social costs and benefits of production in a free market that result in market failure.



Which change in output would be necessary to overcome this market failure?

A from K to M **B** from M to N **C** from M to L **D** from N to L

3 The diagram shows the production possibility curve for an economy.



What might make it possible for consumers in this economy to consume the combination of goods X and Y indicated by the point L?

A a reduction in unemployment
B the achievement of productive efficiency
C the elimination of a monopoly in the production of good X
D trade with other economies

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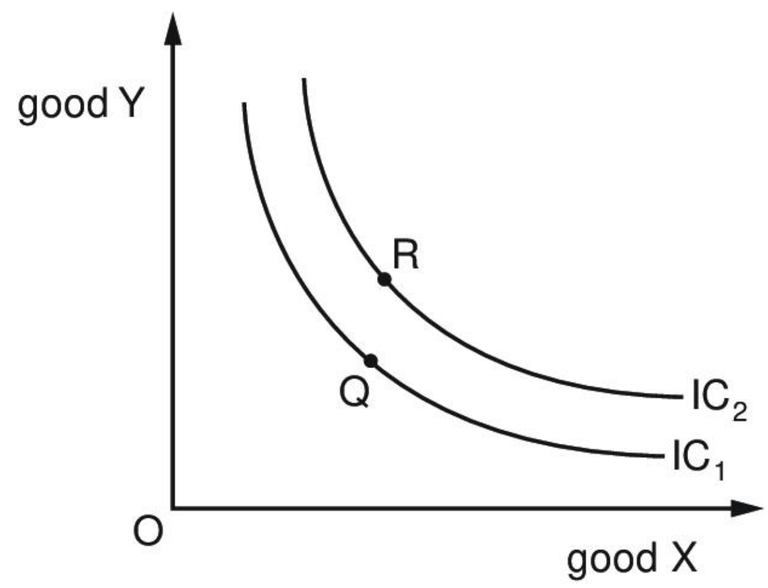
4 The diagram shows two indifference curves for a consumer.



What can be concluded if the consumer's equilibrium moves from Q to R?

A The consumer is acting rationally.
B The consumer's money income is unchanged.
C The opportunity cost of good Y is constant.
D The price of good X has risen.

5 When the price of a good falls the effect on the quantity demanded is the result of an income effect and a substitution effect.
Which statement about these effects is correct?

A For inferior goods the income effect and the substitution effect work in the same direction.
B For inferior, but not Giffen, goods the income effect outweighs the substitution effect.
C For normal goods the income effect and substitution effect work in the same direction.
D For normal goods the income effect outweighs the substitution effect.

6 Where is the long-run equilibrium output of a perfectly competitive firm?

A where average costs are at a minimum
B where average costs are falling
C where marginal costs are at a minimum
D where marginal costs are falling

7 A firm estimates that, all else remaining unchanged, an increase in its output will result in an equal proportionate increase in its revenue.
What can be concluded from this?

A The demand curve for the firm's product is horizontal.
B The firm operates in a monopolistically competitive market.
C The price elasticity of demand for the firm's product is –1.
D The supply of the firm's product is perfectly inelastic.

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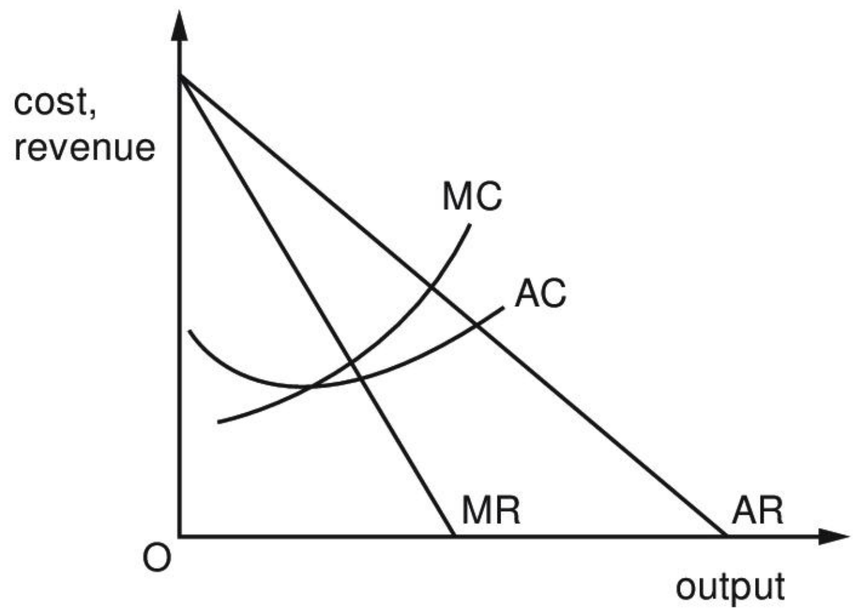
8 The diagram shows a firm's cost and revenue curves.



The firm changes its objective from profit maximisation to sales revenue maximisation.
Which groups are likely to be winners and losers as a result of this change?

	winners	Losers
A	customers	shareholders
B	managers	customers
C	workers	managers
D	shareholders	workers

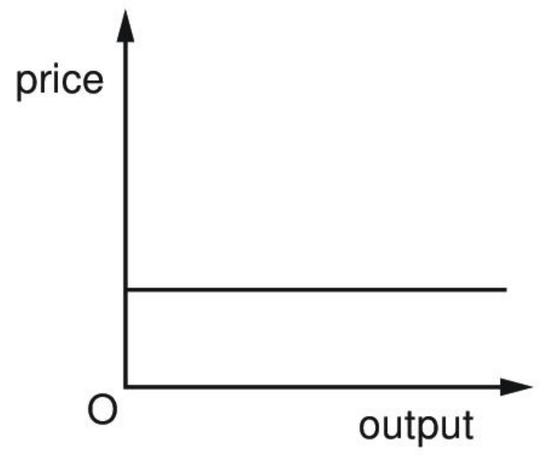
9 What could be a reason for the existence of small firms in various industries?

A a low minimum efficient scale of production
B greater scope for specialisation and division of labour
C the need to diversify in order to reduce risk
D the principal-agent problem

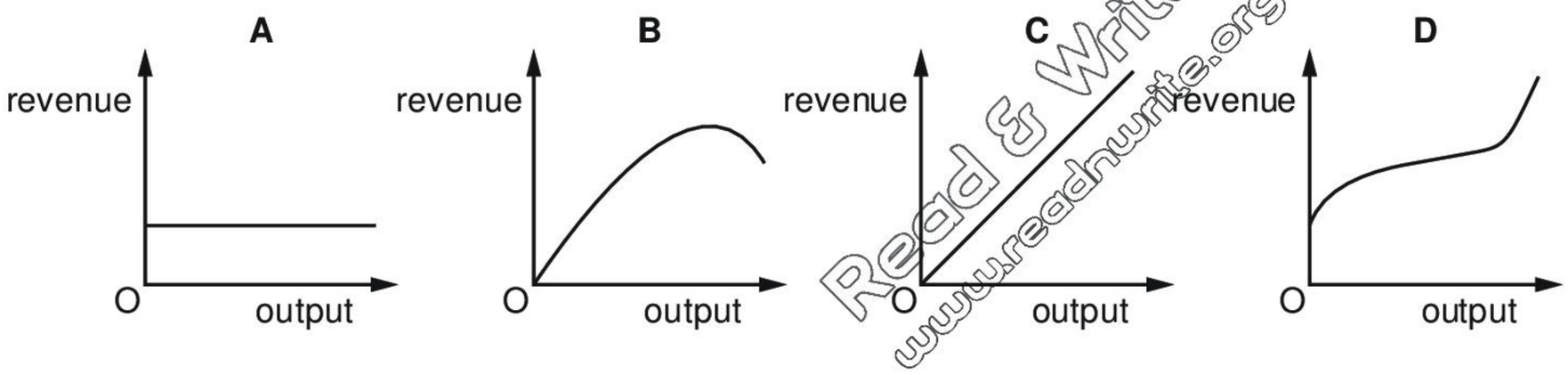
10 A firm in monopolistic competition that is producing at its profit maximising output is making a loss in the short run.
For it to continue in production, what must be correct about its average revenue (AR), marginal revenue (MR) and average variable cost (AVC)?

A AR = MR; AVC > AR **B** AR = MR; AVC < AR
C AR > MR; AVC > AR **D** AR > MR; AVC < AR

11 The diagram shows the demand curve for a firm's product.



Which diagram shows the shape of the firm's total revenue (TR) curve?



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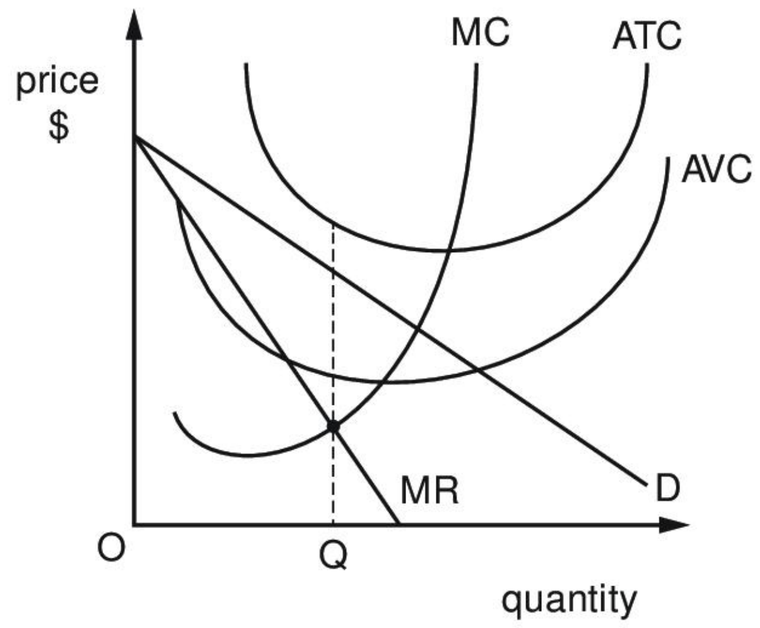
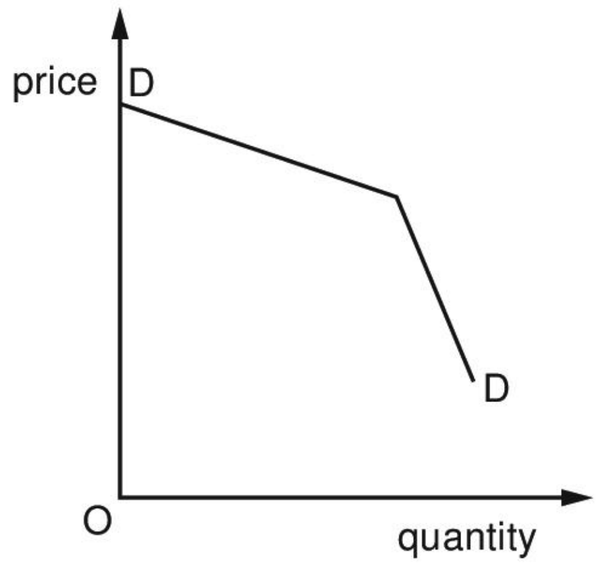
12 The diagram shows a firm in monopoly producing OQ units.



Which outcome can be observed in the diagram?

A loss minimization
B profit satisficing
C revenue maximization
D unit cost minimisation

13 Which feature of oligopoly is being assumed when the demand curve for an individual firm is as shown?



A price discrimination
B price leadership by the dominant firm
C interdependence between firms
D collusion between firms

14 Which statement is most likely to explain why a government decides to increase the highest rates of tax on personal income?

A It expects total tax revenue to be unaffected by the policy change.
B It is concerned about the possibility of emigration by some high earning individuals.
C It regards equity considerations as being more important than efficiency ones.
D It wishes to switch the emphasis of its tax system from direct to indirect taxation.

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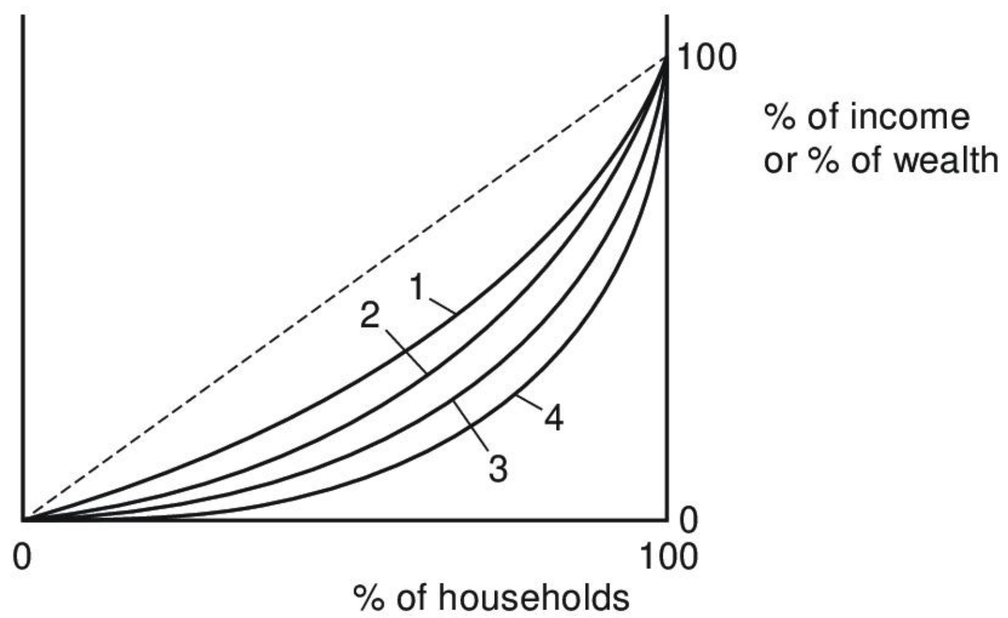
15 The Lorenz curves in the diagram show different distributions of income and of wealth.



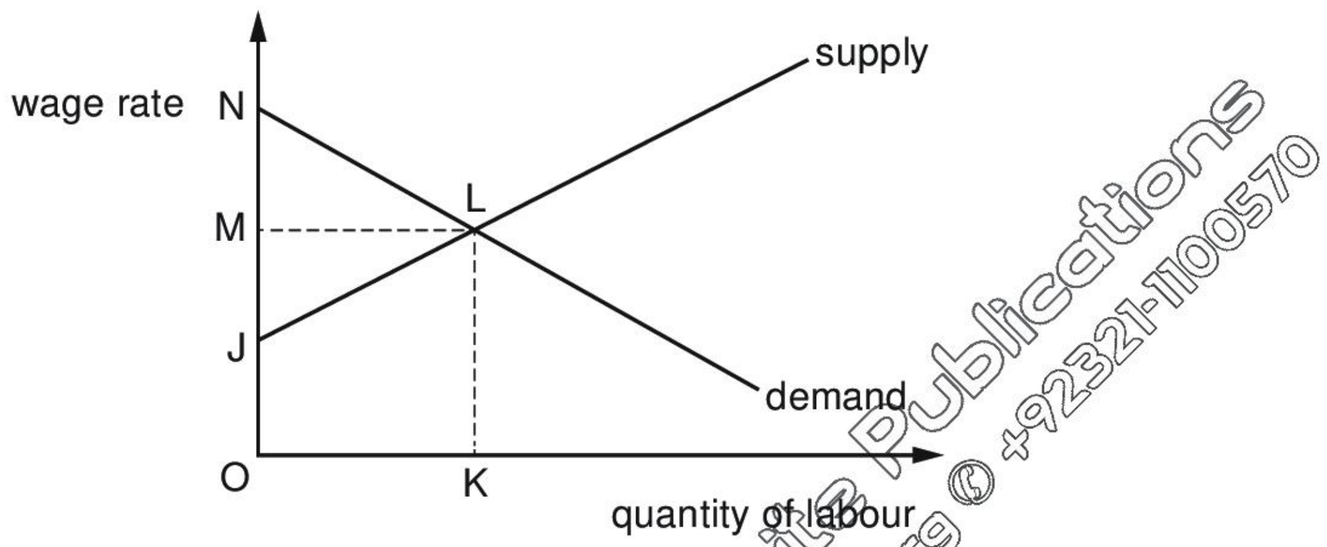
Income in a country is more equally distributed than wealth.
In a period the distribution of income becomes more unequal but the distribution of wealth becomes more equal.
Which movement would show the effects of these changes on the distribution of income and wealth within the country?

	distribution of income	distribution of wealth
A	shift from curve 1 to curve 2	shift from curve 4 to curve 3
B	shift from curve 2 to curve 1	shift from curve 3 to curve 4
C	shift from curve 3 to curve 4	shift from curve 2 to curve 1
D	shift from curve 4 to curve 3	shift from curve 1 to curve 2

16 A government wishes to discourage tax avoidance.
Which policy to achieve this would be an example of the behavioural approach of nudge theory?

A compelling direct tax deduction by employers
B making random inspections of individual tax records
C providing information on how the tax is spent by the government
D using penalties, such as fines and imprisonment for tax avoidance

17 The diagram shows the supply and demand situation in a particular labour market.



When the market is in equilibrium, which areas measure the economic rent and transfer earnings received by employees?

	economic rent	transfer earnings
A	JLN	OKLJ
B	JML	OKLJ
C	NML	OKLM
D	OKLM	NML

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18 In 2015 a company drilling for oil wished to reduce its workforce because of a fall in the price of oil. The workers' trade union opposed the proposal.
Which situation would have helped the trade union in the negotiations?

A Capital and labour were close substitutes.
B The cost of labour had been a small percentage of total cost.
C The demand for oil had been price inelastic.
D There had been a large supply of labour.

19 Which policy is specifically designed to reduce the level of structural unemployment?

A an increase in the level of state benefits paid to the unemployed
B a reduction in interest rates
C a reduction in the level of direct taxation
D the provision of retraining schemes

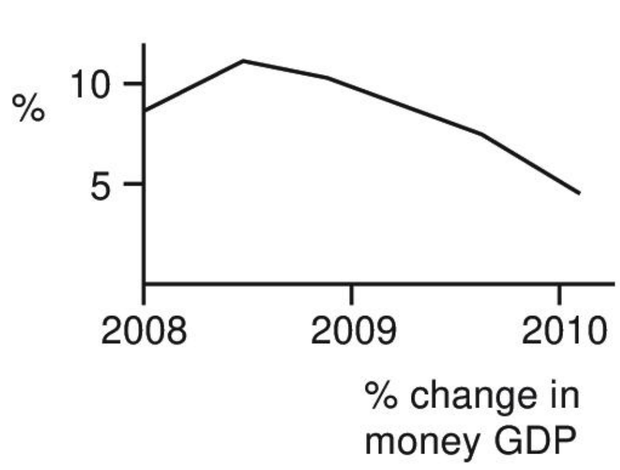
20 What is typically associated with a relatively low level of income per capita in a country?

A low exports
B low inflation
C low investment
D low population

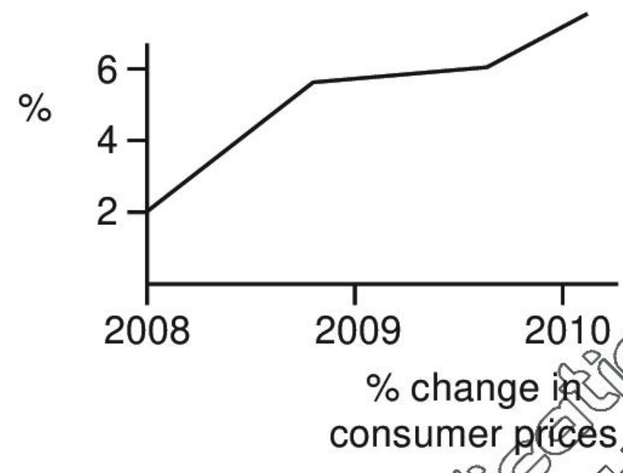
21 During a certain period, a country with a constant population expands its output per head. It also experiences a significant increase in river and atmospheric pollution.
In the absence of any other changes, which measure would show a decrease in living standards?

A Gross Domestic Product per head
B Gross National Product per head
C Human Development Index
D Measure of Economic Welfare

22 The graphs below show percentage changes in money GDP and consumer prices in a country between 2008 and 2010.



% change in money GDP



% change in consumer prices

Which conclusion may be drawn from the graphs?

A Between 2009 and 2010 money GDP fell but consumer prices continued to rise.
B Consumer prices and money GDP both continued to rise throughout the period.
C In real terms GDP grew throughout the period.
D When consumer prices rose, money GDP fell.

23 Why do some economists suggest there may be positive benefits from frictional unemployment?

A A short spell of frictional unemployment may lead workers to become discouraged.
B Frictional unemployment allows time for retraining in newly emerging skills.
C Job search during frictional unemployment may lead to a better match of workers and jobs.
D The psychological effects of frictional unemployment are less than the economic effects.

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24 The table shows the levels of consumption expenditure for given family incomes.

disposable family income ($)	consumption expenditure ($)
2000	2150
3000	3100
4000	4000
5000	4850
6000	5650
7000	6380

Over the range of disposable income shown, as income rises what happens to the marginal propensity to consume?

A It falls and then rises.
B It falls continuously.
C It rises and then falls.
D It rises continuously.

25 Which could cause the official statistics for the national income per head of a developing country to overstate the true level of economic well-being of its inhabitants?

A if there is dependence on barter in internal trade
B if subsistence agriculture dominates total economic activity
C if services are an important component of exports
D if there is extreme income inequality

26 The table shows some United Nations population statistics for 2010 and estimates for 2050.

types of region	total population (m) 2010	total population (m) 2050	urban population (m) 2010	urban population (m) 2050	population urbanised (%) 2010	population urbanised (%) 2050
more developed regions	1237	1275	930	1100	75	86
less developed regions	5671	7875	2556	5186	45	66
least developed regions	855	1673	249	914	29	55

Which relationship can be confirmed from the table?

A The least developed regions have the largest urban populations, actual or predicted, in both years.
B The more developed regions have the lowest growth rate of urbanisation between 2010 and 2050.
C The type of region with the greatest total population in 2010 is predicted to have the greatest rate of population growth by 2050.
D The type of region with the greatest urban population in 2010 is predicted to have the highest level of urbanisation by 2050.

27 In 2015, the World Bank agreed to give a loan of $650 m to Angola to help stabilise the economy. The Bank said Angola needed to have a fiscal policy that would encourage the diversification of its economy.
Which policy would be consistent with this requirement?

A the lowering of interest rates to encourage investment in solar power
B the relaxing of regulations to allow the development of a new hydro-power project
C the spending of the loan supporting its oil industry after oil prices collapsed
D the subsidising of a partnership with a French company to establish a chain of tourist hotels

28 A country with demand-pull inflation decides to fix its exchange rates against other currencies above the purchasing power parities.
What is likely to happen to the macroeconomic indicators shown?

	interest rate	interest rate	current account balance
A	decrease	decrease	improve
B	decrease	increase	worsen
C	increase	decrease	worsen
D	increase	increase	improve

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29 In the short run, which policy measure would tend to reduce a country's balance of payments deficit but increase its inflation rate?

A a decrease in the level of import tariffs
B an appreciation of the country's currency
C an increase in the level of indirect taxes
D a reduction in government spending

30 In an economy with unemployed resources the government increases its expenditure.
When would this be least likely to increase national income by the full multiplier effect?

A when the level of autonomous private investment is increased
B when the marginal propensity to save is reduced
C when the government allows money supply to expand
D when the level of interest rates rises

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Answer Key

1	**B**	9	**A**	17	**B**	25	**D**
2	**C**	10	**D**	18	**B**	26	**B**
3	**D**	11	**C**	19	**D**	27	**D**
4	**A**	12	**A**	20	**C**	28	**C**
5	**C**	13	**C**	21	**D**	29	**C**
6	**A**	14	**C**	22	**B**	30	**D**
7	**A**	15	**A**	23	**C**		
8	**A**	16	**C**	24	**B**		

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November 2017 Paper 32

1 In an economy no one can be made better off without making someone else worse off.
What can be deduced from this?

A Individuals are the best judges of their own well-being.
B Individuals can be relied upon to behave rationally.
C The distribution of income is socially optimal.
D The economy's resources are allocated efficiently.

2 In 2015, a large mining company said it would reduce the number of staff by 6000 and sell its less profitable mines in an attempt to become more efficient.
If it is successful, what is most likely to happen to its costs?

	total fixed cost	total variable cost	average cost
A	fall	fall	fall
B	fall	fall	no change
C	fall	no change	fall
D	no change	fall	fall

3 The production of a firm which operates in an imperfectly competitive market gives rise to external production costs.
Which statement about this firm must be correct?

A External costs exceed external benefits.
B Private costs exceed social costs.
C Social costs exceed private costs.
D Social costs exceed social benefits.

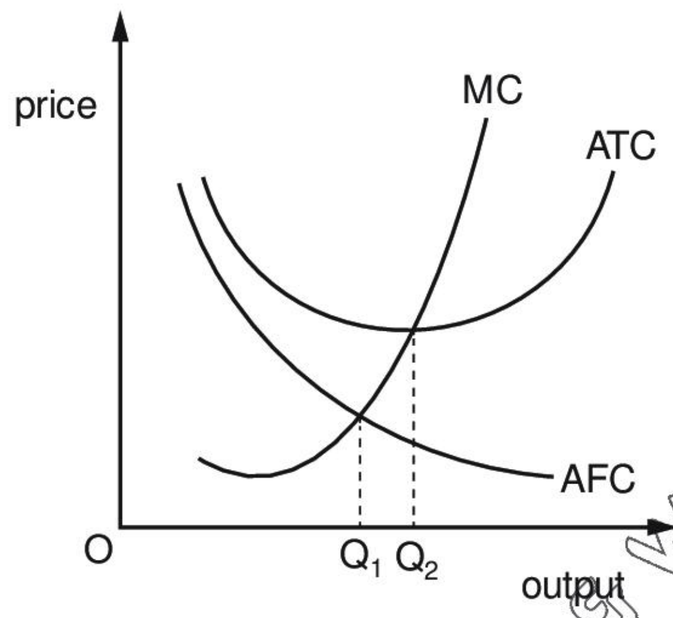
4 In the UK in 2015 there were two methods of charging for water supply.

1 a fixed charge giving the consumer the right to consume water at zero price per litre
2 a price per litre of water used

It has been observed that the amount of water consumed is markedly lower when method 2 is used.
What is implied by this observation?

A Water in the UK is not a scarce good.
B Water is a free good of nature and no charge should be levied.
C Water is a necessity, the use of which should not be restricted by unit prices.
D Water is subject to the law of diminishing marginal utility.

5 The diagram shows the cost curves for a firm.



What does the firm experience as it increases output from Q_1 to Q_2?

A decreased average variable cost
B diminishing returns
C economies of scale
D increased profit

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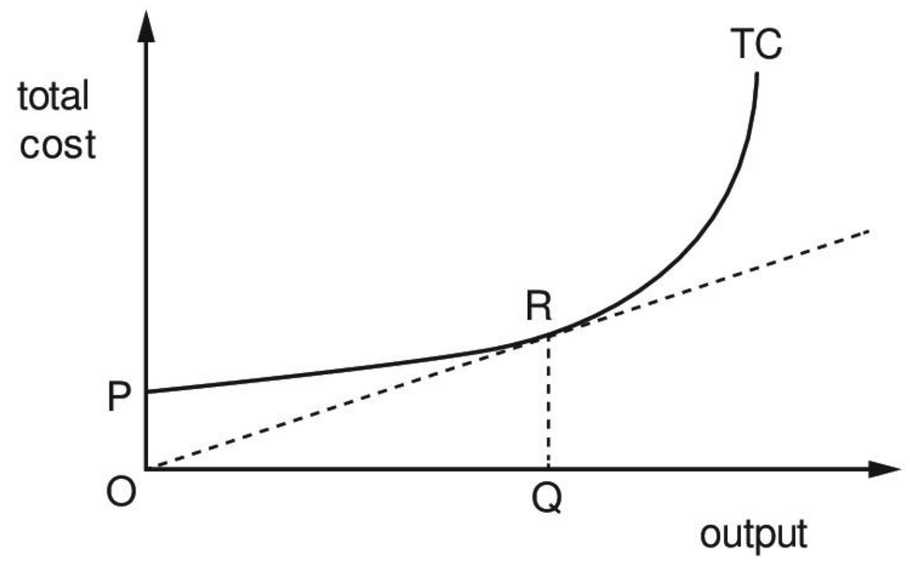
6 Firms X and Y merge in a horizontal integration.
What must be true about the industry and the stage of production in which X and Y operate?

	industry	stage of production
A	different	different
B	different	same
C	same	different
D	same	same

7 In the diagram the curve TC shows the relationship between a firm's total costs and its level of output.



At output OQ average fixed costs are

A equal to $\frac{OP}{QR}$.

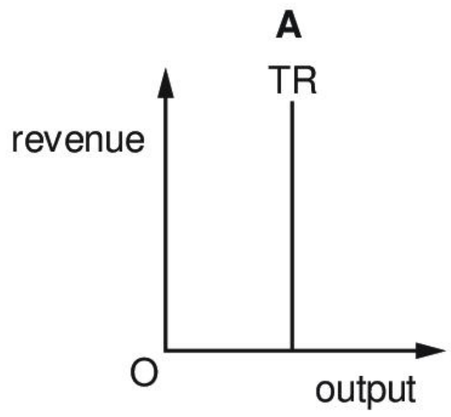
B equal to $\frac{QR}{OQ}$.

C equal to $\frac{OP}{OQ}$.

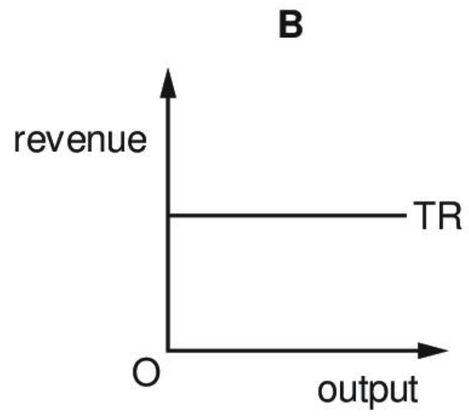
D measured by the slope of the line OR.

8 Which diagram shows the total revenue function for a firm in perfect competition?

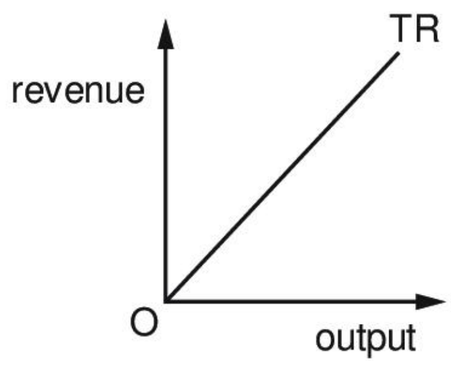
A



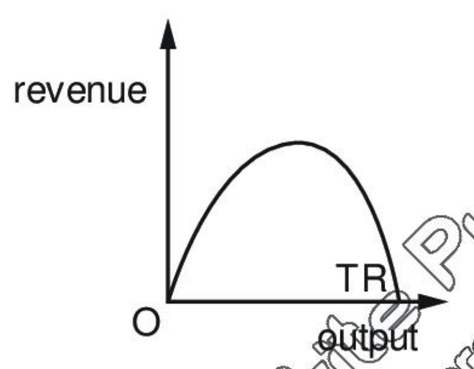
B



C



D



9 Many public utilities can be described as 'natural' monopolies.
Which statement best describes the situation leading to a 'natural' monopoly?

A There are high fixed costs and falling average costs over all outputs demanded.
B There are legal restrictions on new entrants.
C A single firm controls the supply of raw materials.
D The firm has a patent on an essential process.

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10 Increased advertising by a firm in an imperfectly competitive industry leads to an increase in demand for the industry's product but a fall in the firm's profits.
What could help to explain this?

A Production is subject to diseconomies of scale.
B Rival firms respond by increasing their advertising outlays.
C The demand for the industry's product is price-inelastic.
D The increase in demand for the firm's output is entirely at the expense of other firms.

11 An industry consists of a dominant firm, which acts as a price leader, and a large number of small firms.
Which statement about the profit-maximising output of the small firms is correct?

A Average cost is equal to average revenue.
B Average cost is minimised.
C Marginal cost is equal to price.
D Marginal revenue is zero.

12 There are two firms in an industry. Firm X faces a choice. It can either act independently or work with its rival. If it acts independently its profit could be $900 a week but it could be only $400 a week depending on what its rival does. If it works with its rival the joint profit of the two firms together would be $1400, $700 each. It has no knowledge of what the rival's policy will be.
Which concept describes this situation?

A contestable market
B kinked demand curve
C principal agent problem
D prisoner's dilemma

13 What explains the kinked demand curve model of price rigidity in oligopoly?

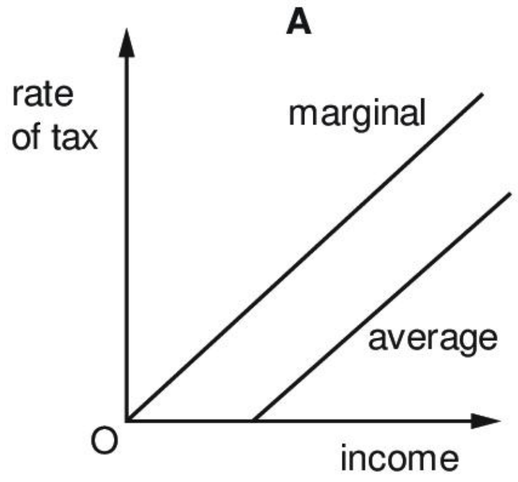
A collusion between all firms in the industry in the setting of prices
B the assumption that a single firm acts as price leader for all firms in the industry
C the individual firm's expectations about other firms' responses to its price changes
D the presence of barriers to the entry of new firms into the industry

14 Which policy is not designed to correct a market failure?

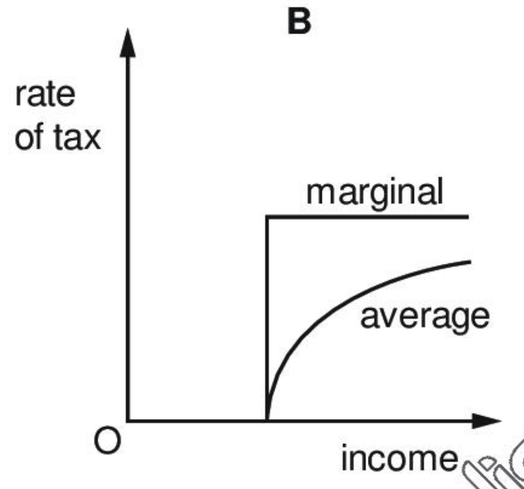
A government provision of health care
B removing import quotas
C price controls on large firms
D regulations to limit smoke pollution

15 A tax system allows people to earn a certain sum of income free of income tax. On income above this level, tax is levied at a constant rate.
Which diagram correctly shows how marginal and average rates of tax vary with income?

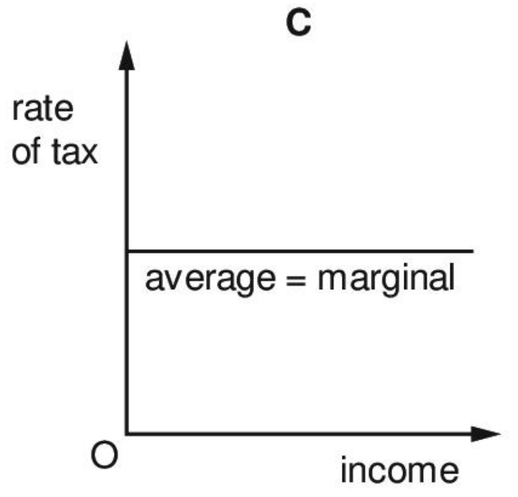
A



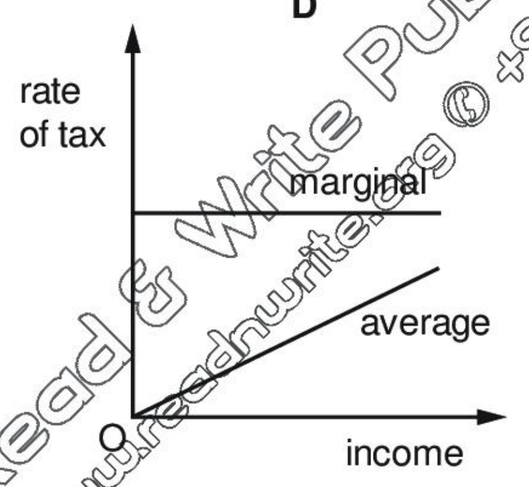
B



C



D



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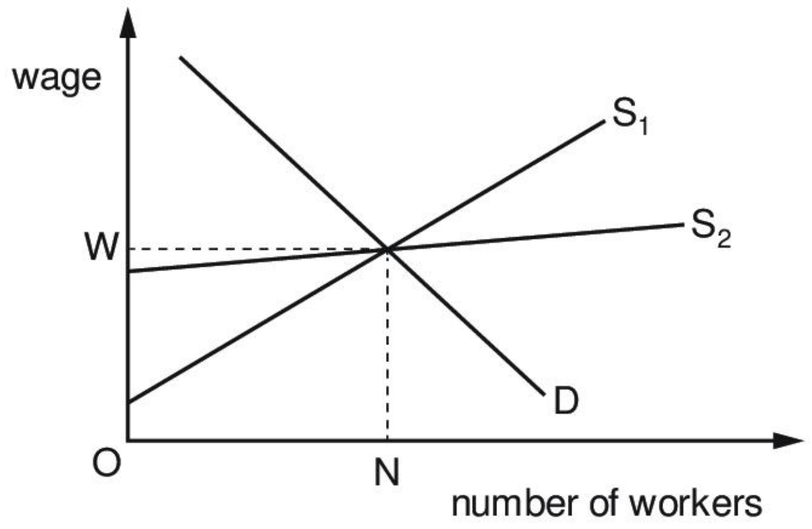
16 What is the best example of nudge theory as applied to the prevention of tax evasion?

A employing an extensive administration to ensure detection of evasion
B imposing heavy penalties to deter offending behaviour
C providing information to taxpayers about the undesirable effects of tax evasion
D requiring employers to inform the tax authorities of workers' pay

17 In many countries it has been observed that, when high marginal rates of income tax imposed on richer groups are reduced, the tax revenue raised increases.
What is an implication of this observation?

A Government policy should aim to minimise the income tax.
B Sales taxes are always superior to income taxes as a means of raising revenue for the government.
C Tax policy intended to reduce income tax on the rich may make the poor better off.
D The government should always levy proportional rather than progressive income taxes.

18 The diagram represents the market for labour.



What would be the effect on transfer earnings and economic rent of a change in the supply curve from S_1 to S_2?

	transfer earnings	economic rent
A	fall	falls
B	fall	rises
C	rise	rises
D	rise	falls

19 How might real GNP per head be adjusted to make it a more reliable indicator when comparing standards of living in different countries?

A adjustments to allow for differences in population size in different countries
B adjustments to allow for differences in rates of inflation in different countries
C adjustments to allow for differences in the relative size of the hidden economy in different countries
D the use of market exchange rates rather than purchasing power parity exchange rates

20 Which combination of circumstances is most likely to lead to an increase in a country's budget deficit?

	total GDP	unemployment	discretionary government spending
A	decreases	rises	decreases
B	decreases	rises	no change
C	increases	falls	increases
D	increases	falls	no change

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21 To combat a rising crime rate, the government decides to recruit additional police officers who are paid a wage equal to that which they previously earned in the private sector.
As long as their previous jobs remain unfilled, what effect will the recruitment of the additional police officers have on the national income and on economic welfare?

	effect on national income	effect on economic welfare
A	increase	unchanged
B	uncertain	decrease
C	unchanged	decrease
D	unchanged	uncertain

22 What could not exist in a closed, mixed economy?

A a balance of trade deficit **B** a budget deficit
C household debt **D** national debt

23 What does the accelerator principle state?

A Consumption is a function of the rate of change of income.
B Income is a function of the rate of change of investment.
C Investment is a function of the rate of change of income.
D Investment is a function of the rate of interest.

24 What would not be classified as structural unemployment?

A a car worker who is replaced by a robot on the production line
B a coal miner whose mine closes because of increased use of solar power
C a fruit picker who cannot find work in the winter months
D a textile worker whose factory closes as production moves abroad

25 What represents a leakage from the circular flow of income in an economy?

A a balance of trade surplus **B** a government budget surplus
C reduction in funds for research and development **D** re-investment of a firm's profits

26 What will cause a downward shift in the aggregate demand curve of an economy?

A an increase in firms' stocks of raw materials **B** a decrease in the export of goods
C a decrease in the propensity to import **D** a decrease in saving

27 Which policy is most likely to raise the level of total demand in an economy?

A an increase in direct taxation matched by a reduction in indirect taxation
B a relaxation of import controls
C cuts in public expenditure matched by tax cuts
D devaluation of the currency

28 The government cuts taxes and increases its spending in order to create jobs during a recession.
When will a resulting budget deficit be least likely to cause a permanent reduction in unemployment?

A when households expect higher inflation rates in the future
B when households spend their extra disposable incomes on domestic products
C when the government's extra spending is on new infra-structure projects
D when the government's extra spending is on the salaries of public sector workers

29 In 2011, the global money supply, narrowly defined, rose 11% and broadly defined money increased roughly 8%, as central banks continued efforts to keep interest rates low.
What type of policy does this statement illustrate?

A contractionary fiscal **B** contractionary monetary
C expansionary fiscal **D** expansionary monetary

30 Which policy measure would be most likely to reduce a developing economy's birth rate and its household saving ratio?

A an increase in student tuition fees **B** a relaxation of immigration controls
C the introduction of a basic state pension **D** the removal of tariffs on imported foodstuffs

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Answer Key

1	**D**	9	**A**	17	**C**	25	**B**
2	**A**	10	**B**	18	**D**	26	**B**
3	**C**	11	**C**	19	**C**	27	**D**
4	**D**	12	**D**	20	**B**	28	**A**
5	**B**	13	**C**	21	**D**	29	**D**
6	**D**	14	**B**	22	**A**	30	**C**
7	**C**	15	**B**	23	**C**		
8	**C**	16	**C**	24	**C**		

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June 2018 Paper 32

1. M/J 18/P32/Q1

How is social cost calculated?

A external cost minus external benefit
B external cost minus private cost
C external cost plus private cost
D social cost minus social benefit

2. M/J 18/P32/Q2

Which government policy is not aimed at correcting inefficiency in resource allocation?

A marginal cost pricing in state owned industries
B permits restricting the pollution of rivers by private firms
C requiring firms to pay a minimum wage
D the provision of public goods at zero price

3. M/J 18/P32/Q3

The table shows some of the costs and benefits, in $ millions, associated with a road building project. Both a government department and a profit-maximising private firm are considering building the road.

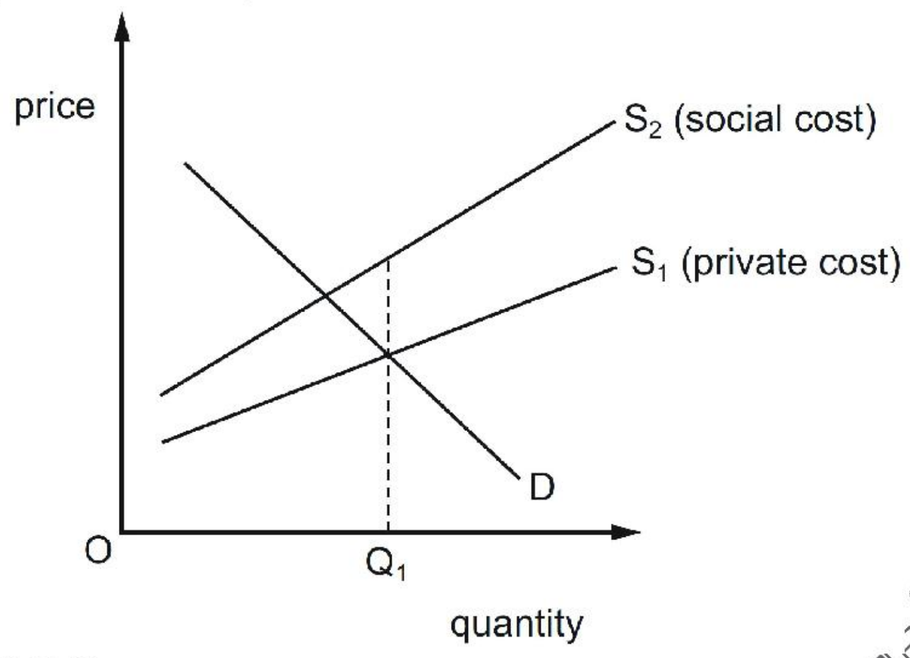
private costs	external costs	external benefits	social benefits
450	75	50	550

Who would be willing to build the road?

A Both would be willing to build it.
B Neither would be willing to build it.
C Only the government department would be willing to build it.
D Only the private firm would be willing to build it.

4. M/J 18/P32/Q4

In the diagram, Q_1 is the quantity produced of a good as the result of market forces.



Which concept is present at output Q_1?

A a government subsidy
B a negative externality
C a positive externality
D a specific tax

5. M/J 18/P32/Q5

What would not affect the budget line of an individual consumer?

A the individual's preference for various goods
B the level of income tax
C the money prices of goods
D the wages earned by the individual

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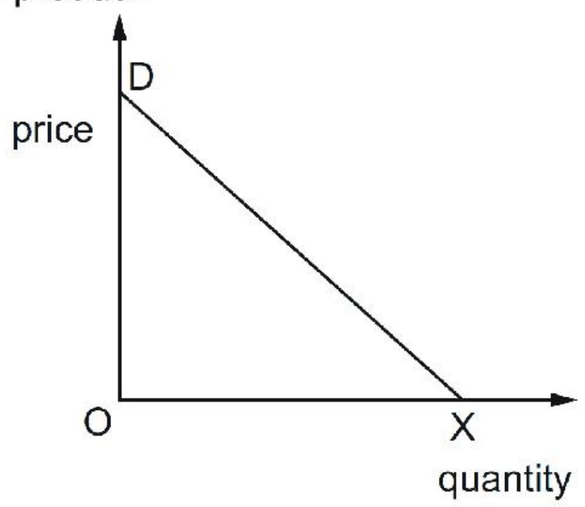
6. M/J 18/P32/Q6

The diagram shows the demand curve for a product.

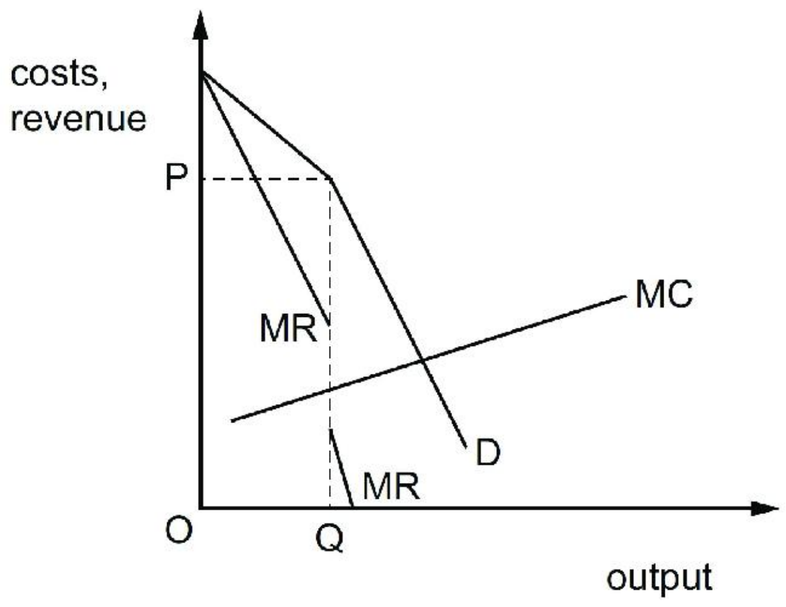


What is maximised at X?

A marginal revenue **B** total revenue **C** marginal utility **D** total utility

7. M/J 18/P32/Q7

The diagram shows a firm's cost and revenue curves.



Which features are associated with the diagram?

A economies of scale and allocative efficiency
B interdependence and allocative efficiency
C price rigidity and economies of scale
D price rigidity and interdependence

8. M/J 18/P32/Q8

In the year ending July 2016, airline fuel prices fell by 20.4% while the price of passenger aircraft increased by around 1.1%.

Assuming no other changes in the passenger airline industry, what was the outcome for fixed costs and variable costs?

	fixed costs	variable costs
A	decreased	decreased
B	decreased	increased
C	increased	decreased
D	increased	increased

9. M/J 18/P32/Q9

Which feature of production would make it more likely that an industry is a contestable market?

A advertising has established consumer loyalty
B all firms in the industry share research and development
C low fixed costs
D market rivals aim to reduce product differentiation

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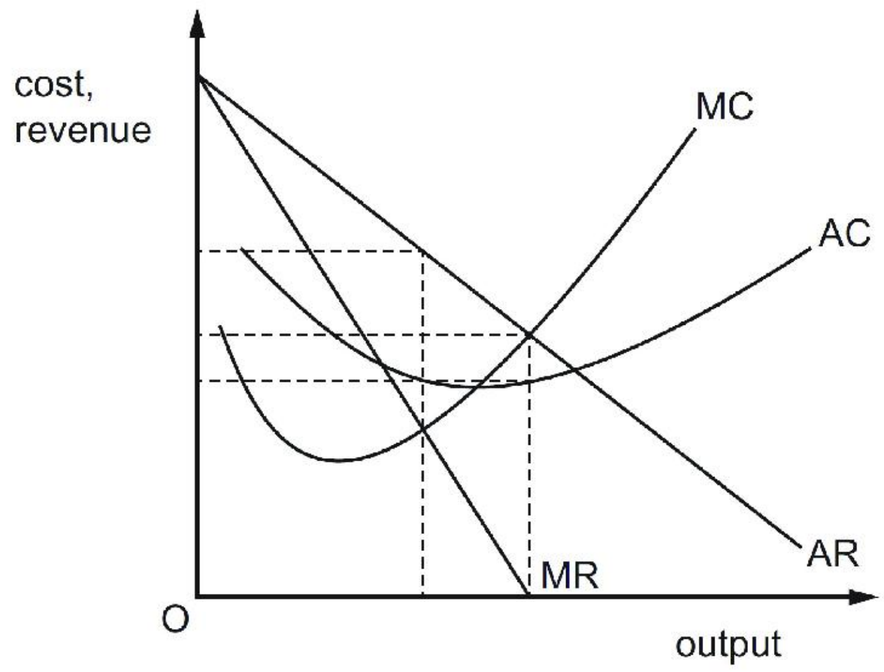
10. M/J 18/P32/Q10

What is an example of backward vertical integration?

A a bakery buying a wheat farm
B a car manufacturer buying a car showroom
C a vineyard buying an apple orchard
D two rival supermarkets joining together

11. M/J 18/P32/Q11

The diagram shows a firm in imperfect competition. It changed its aim from profit maximising to sales revenue maximising.



Which type of profit was it making in each case?

	profit maximising	sales revenue maximising
A	normal profit	supernormal profit
B	subnormal profit	normal profit
C	supernormal profit	normal profit
D	supernormal profit	supernormal profit

12. M/J 18/P32/Q12

An airline sells seats at $100 each three months before a flight, at $150 each one month before the flight and at $200 each the day before the flight.
What describes this type of market behaviour by the firm?

A limit pricing to deter entry in an imperfect market
B price discrimination by a monopoly supplier
C price leadership by an oligopolist
D pricing where price equals average cost under perfect competition

13. M/J 18/P32/Q13

What would not be an indication of a divergence between the interests of the managers and the shareholders of a company?

A an emphasis on sales maximisation
B management salaries which are linked to the long-run growth of the company's share price
C the acceptance of 'X' inefficiency in the company's production process
D the purchase of artwork for a company's headquarters

14. M/J 18/P32/Q14

The total cost to a school of employing ten cleaners is $60 per hour.
The school estimates that the hourly marginal cost of employing an eleventh cleaner would be $11.50.
By how much would the hourly wage have to increase to employ an additional cleaner?

A $0.50 **B** $0.65 **C** $2.25 **D** $11.50

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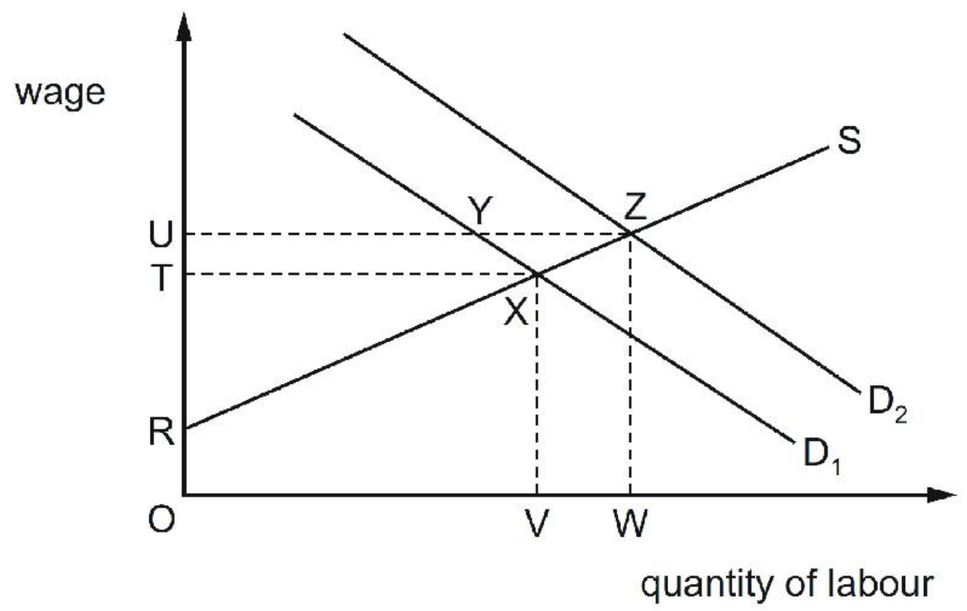
15. M/J 18/P32/Q15

What would cause a rise in the productivity of labour?

A an increase in indirect taxes
B an increase in the quality of capital
C a rise in consumer surplus
D a rise in the elasticity of supply of labour

16. M/J 18/P32/Q16

In the diagram D_1 and S are the initial demand and supply curves for building workers.



If the demand for building workers increases to D_2 by how much does the economic rent earned by building workers rise?

A RUZ **B** TUZX **C** VXZW **D** XYZ

17. M/J 18/P32/Q17

Under which circumstances will a subsidy from the government be most beneficial if there are externalities from producing good X?

	externality caused by good X	price elasticity of demand of good X
A	negative	<1
B	negative	>1
C	positive	<1
D	positive	>1

18. M/J 18/P32/Q18

Which tax would help a government achieve a more equal distribution of income after tax?

A a constant rate sales tax applicable to all goods and services
B a constant rate tax per person
C an income tax with a constant marginal rate over the whole income range
D an income tax with a tax-free allowance and a constant marginal rate thereafter

19. M/J 18/P32/Q19

A country has a population of 100 million. There are 5 million people unemployed and the country has an unemployment rate of 10%.

What is the size of the labour force?

A 10 million **B** 50 million **C** 90 million **D** 95 million

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20. M/J 18/P32/Q20

Which type of unemployment is correctly linked to the description of its cause?

	type of unemployment	description of the cause
A	cyclical	a change in demand due to holiday periods
B	frictional	a lack of sufficient information
C	structural	a temporary change in consumers' expenditure
D	technological	a general decrease in the demand for goods

21. M/J 18/P32/Q21

Growth rates can be calculated using changes in the value of GDP from year to year.
Why is real GDP per head considered to be a better indicator than nominal GDP per head for this calculation?

A Real GDP adjusts for price changes by using a base year.
B Real GDP ignores the effects of fluctuations in exchange rates on purchasing power.
C Real GDP includes changes in the size of the population.
D Real GDP measures GDP at factor cost rather than market prices.

22. M/J 18/P32/Q22

What would not exist in a free market, open economy?

A autonomous investment
B household saving
C import spending
D indirect taxation

23. M/J 18/P32/Q23

The information in the table is taken from a country's national income accounts.

income	US $ (millions)
wages	8000
salaries	7000
unemployment benefit	1000
pensions	1000
rent	3000
interest	2000

What is the value of national income?

A 17 000 **B** 19 000 **C** 20 000 **D** 21 000

24. M/J 18/P32/Q24

What is a part of Keynesian economic analysis?

A a liquidity trap below which interest rates are ineffective
B an equilibrium price that always clears the market
C a small value for the government expenditure multiplier
D a vertical short-run aggregate supply curve

25. M/J 18/P32/Q25

What will definitely increase a country's Gross National Product?

A an increase in income taxes
B an increase in the marginal propensity to import
C an increase in the value of a country's currency
D increased government expenditure on education

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26. M/J 18/P32/Q26

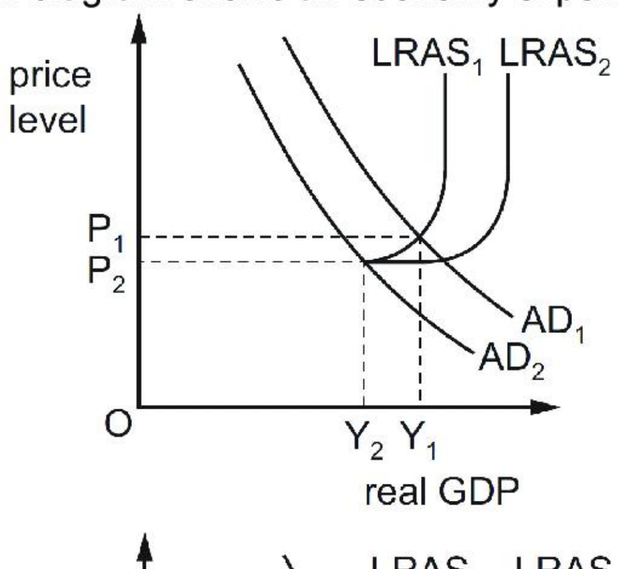
According to the accelerator theory, what determines this year's net investment?

A last year's consumption
B last year's output
C the change in last year's investment
D the change in last year's national income

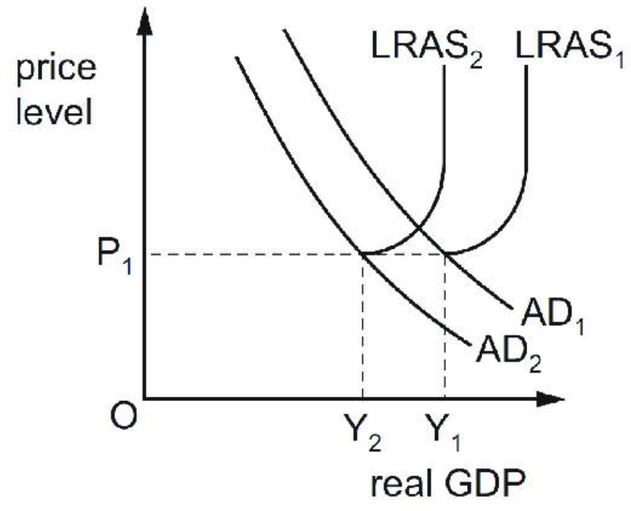
27. M/J 18/P32/Q27

Which diagram shows an economy experiencing an increase in actual output but a decline in potential output?

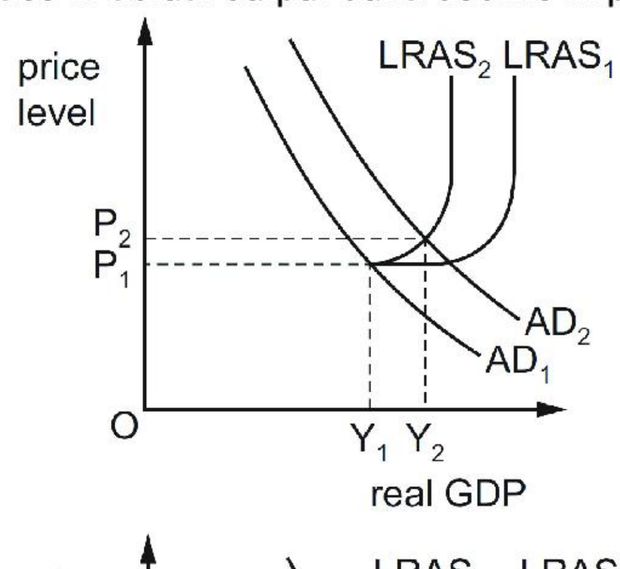
A



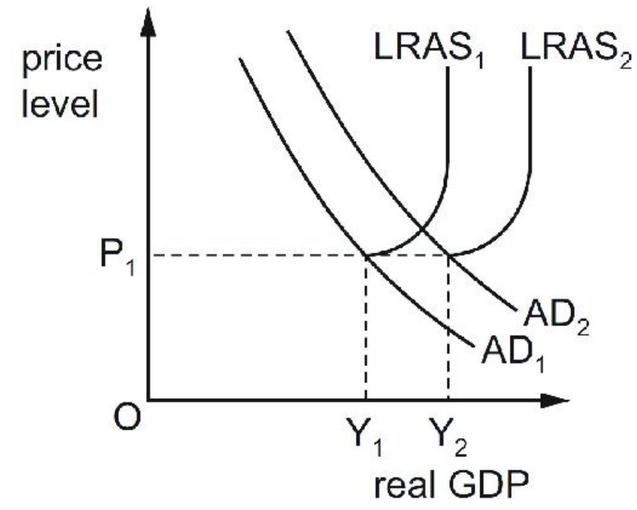
B



C



D



28. M/J 18/P32/Q28

What is likely to follow if a central bank sets negative interest rates?

A an increase in government revenue
B an increase in the rate of inflation
C a reduction in bank lending
D deflation in the economy

29. M/J 18/P32/Q29

The Consumer Prices Index (CPI) fell by 3% in a year. Unemployment was regarded as unacceptably high. Which combination of policies would a government be most likely to adopt in such circumstances?

A an appreciation of the currency, together with an increase in the rate of interest
B increased government expenditure on education, together with an increase in taxes to pay for it
C increased indirect taxes, together with a depreciation in the exchange rate
D reduced income taxes, together with a cut in the rate of interest

30. M/J 18/P32/Q30

Other things being equal, what is most likely to result from an increase in a country's interest rates?

A a capital inflow
B a depreciation of the currency
C an increase in consumption
D an increase in investment

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Answer Key

1	**C**	9	**C**	17	**D**	25	**D**
2	**C**	10	**A**	18	**D**	26	**D**
3	**A**	11	**D**	19	**B**	27	**C**
4	**B**	12	**B**	20	**B**	28	**B**
5	**A**	13	**B**	21	**A**	29	**D**
6	**D**	14	**A**	22	**D**	30	**A**
7	**D**	15	**B**	23	**C**		
8	**C**	16	**B**	24	**A**		

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October/November 2018 Paper 32

1. O/N 18/P32/Q1

In which situation are there definitely positive externalities?

A Private benefits exceed private costs.

B Private benefits exceed social benefits.

C Social benefits exceed private benefits.

D Social benefits exceed private costs.

2. O/N 18/P32/Q2

A cost-benefit analysis is carried out on the construction of a hydroelectric power station.
Which combination of circumstances would be most likely to lead to the scheme being approved?

A Private benefits are greater than private costs.

B Social benefits are greater than social costs.

C Social benefits are greater than total costs.

D Total costs are greater than total revenue.

3. O/N 18/P32/Q3

What does not pose a threat to the achievement of allocative efficiency?

A imperfect information on the part of consumers

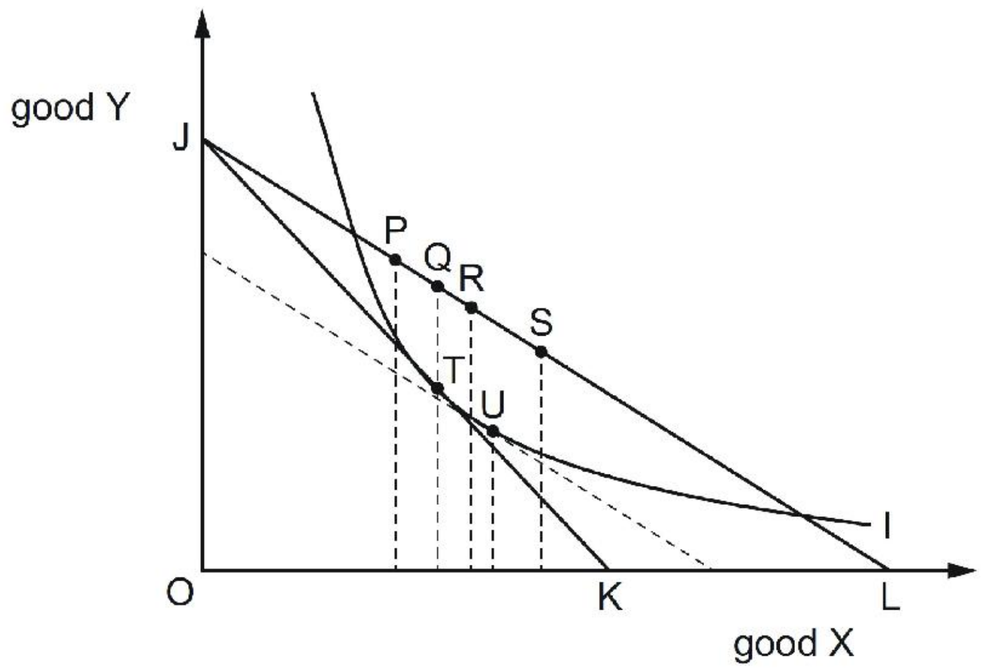
B income inequalities

C the existence of externalities

D the presence of monopolistic elements

4. O/N 18/P32/Q4

The diagram shows budget lines and an indifference curve. The consumer's initial position is T.
The price of good X then falls.



Which combination of statements about the movements in this diagram is correct?

A T to Q represents perfect elasticity; T to P represents a Giffen good

B T to R represents an income effect; R to S represents a substitution effect

C T to U represents a substitution effect; T to Q represents a normal good

D T to U represents a substitution effect; U to P represents an income effect

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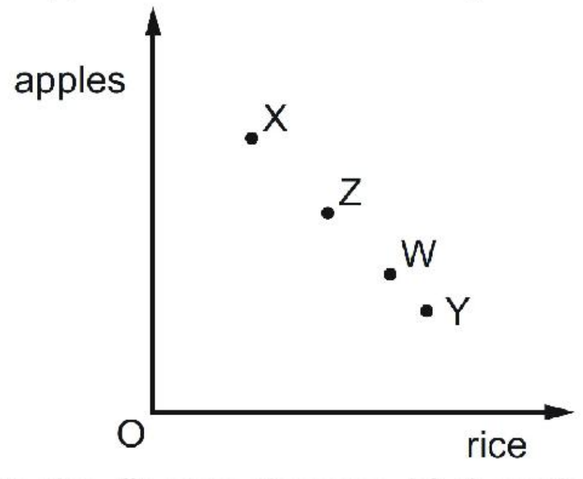
5. O/N 18/P32/Q5

The diagram shows various combinations of apples and rice which are potentially available to a consumer.



If standard indifference curves were added to the diagram they would show that the consumer is indifferent between combination X and combination W.
What can be concluded?

A The consumer is indifferent between combination Y and combination Z.

B The consumer is indifferent between combination Z and combination W.

C The consumer prefers combination Y to combination X.

D The consumer prefers combination Z to combination W.

6. O/N 18/P32/Q6

The schedule shows the short-run marginal cost of producing good X.

units of X	1	2	3	4	5
marginal cost ($)	45	40	30	20	20

Given that the total fixed cost is $50, which level of output minimises average total cost?

A 2 units **B** 3 units **C** 4 units **D** 5 units

7. O/N 18/P32/Q7

What must be found in two markets for price discrimination to be profitable?

A different price elasticities of demand

B different price elasticities of supply

C different producers

D different products

8. O/N 18/P32/Q8

A firm maximises its profits by maximising its total revenue.
What does this imply?

A Average fixed cost is zero.

B Average revenue is equal to average cost.

C Marginal cost is zero.

D Marginal revenue is greater than marginal cost.

9. O/N 18/P32/Q9

Technological change reduces the minimum efficient scale of production in an industry.
What is likely to result?

A increased number of firms and increased size of firms

B increased number of firms and reduced size of firms

C reduced number of firms and increased size of firms

D reduced number of firms and reduced size of firms

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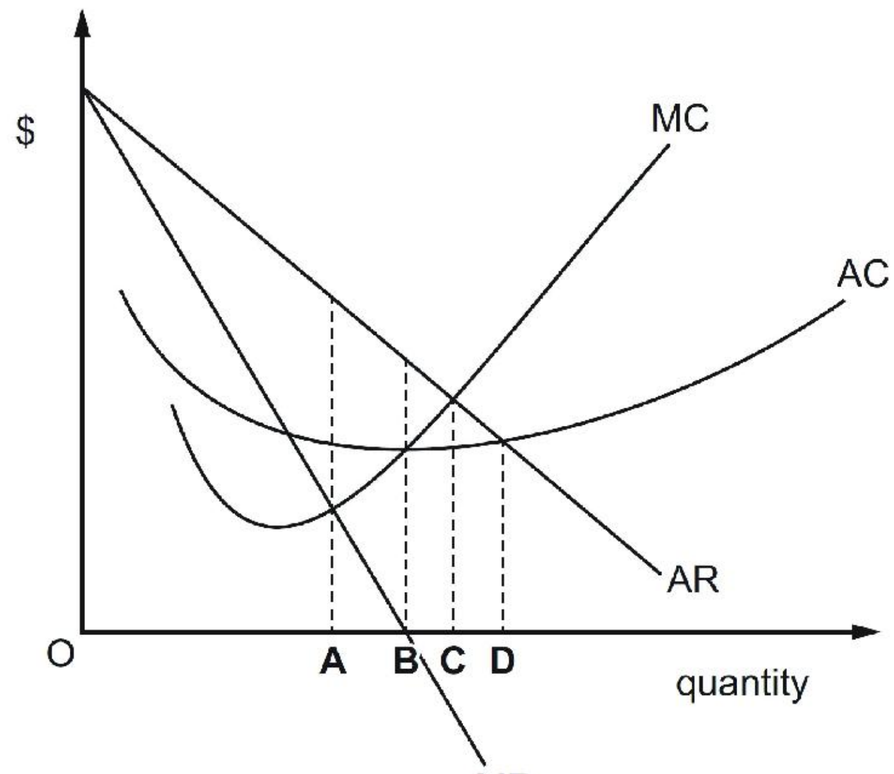
10. O/N 18/P32/Q10

The diagram shows the costs and revenue for a firm in imperfect competition.
Which level of output would produce only a normal profit?



11. O/N 18/P32/Q11

What would be a reason why small firms do not survive?

A In certain industries, there are economies of scale.
B Small firms often supply personal services to consumers.
C Small firms often supply products, the size of the market for which is limited.
D Small owner-managed firms involve less risk.

12. O/N 18/P32/Q12

What is the implication of a dominant oligopoly following a limit pricing policy?

A The industry will be restricted to a target number of firms.
B The industry will contract as rival oligopolists are eliminated.
C The oligopolist will achieve a satisficing level of profit.
D The oligopolist will sacrifice short-term profit for long-term profit.

13. O/N 18/P32/Q13

Transport economists estimate the price elasticity of demand for private car use is very low.
What would be the most effective way of reducing road traffic congestion?

A banning private cars and lorries from town centres
B introducing a subsidy to lower the price of using bicycles
C introducing road pricing on all main roads
D subsidising public transport such as trains and buses

14. O/N 18/P32/Q14

What would help to explain why there was a reduction in wage inequality in a country during the post-2008 economic recession?

A a decline in the share of wages in national output
B a decline in trade union bargaining power
C the existence of a minimum wage
D the trend towards later retirement

15. O/N 18/P32/Q15

How is marginal revenue product calculated?

A marginal physical product × marginal revenue
B marginal physical product ÷ price
C total physical product × marginal cost
D total physical product ÷ marginal cost

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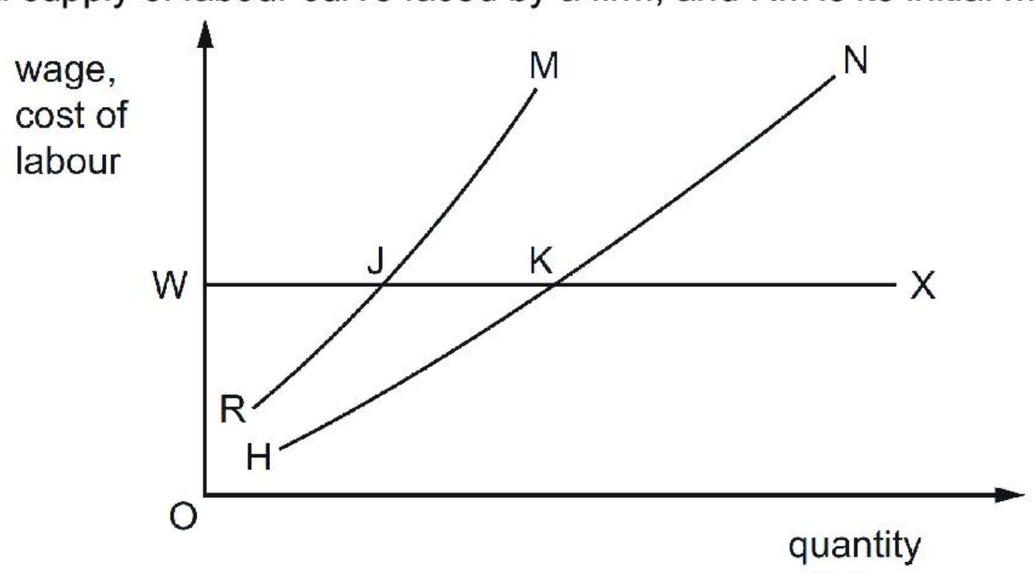
16. O/N 18/P32/Q16

A firm currently employs 30 workers at a daily wage of $50 each.
The marginal cost of employing one extra worker is $112 per day.
By how much will the firm have to increase the daily wage in order to increase its labour force from 30 to 31 workers?

A $2 **B** $4 **C** $62 **D** $112

17. O/N 18/P32/Q17

In the diagram, HN is the initial supply of labour curve faced by a firm, and RM is its initial marginal cost of labour curve.



What will be the firm's new labour supply curve if the workers join a trade union and achieve a union negotiated wage, OW?

A RJX **B** HKX **C** WJM **D** WKN

18. O/N 18/P32/Q18

Output per worker in an industry increases more slowly than the industry's total output.
What could explain this?

A a decrease in labour productivity
B an increase in employment
C an increase in overtime working
D an increase in the hourly wage rate

19. O/N 18/P32/Q19

On a diagram showing a production possibility curve, what definitely represents long-run economic growth?

A a change in the slope of the curve
B a movement from a point below the frontier to a point on the curve
C a movement from one point to another along a given curve
D an outward shift of the curve

20. O/N 18/P32/Q20

When is economic growth most likely to promote economic development?

A when it achieves maximum rates of extraction of raw materials
B when it concentrates on increasing production
C when it discovers valuable new resources in remote natural environments
D when it provides the funds to finance cleaner production processes

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21. O/N 18/P32/Q21

Which items in the table are classified as foreign aid?

	foreign direct investment	official development assistance	portfolio investment flows
A	no	no	yes
B	no	yes	no
C	yes	no	yes
D	yes	yes	no

22. O/N 18/P32/Q22

Country X's living standards were compared with country Y's living standards using real GNP per head converted into US dollars. Country X was ranked above country Y.

Which factor might have caused this ranking to be incorrect?

A Actual market exchange rates were used rather than purchasing power parity rates.

B Government spending on transfer payments was higher in country Y than in country X.

C Inflation was higher in country X than in country Y.

D The distribution of income was more unequal in country X than in country Y.

23. O/N 18/P32/Q23

In 2007 Turkey had a population of 73 m. Its labour force was 36 m, of which 12 m were trained for the primary sector and 24 m were trained for the secondary and tertiary sectors. The unemployment rate was 10%.

What was the number of people unemployed?

A 1.2 m **B** 2.4 m **C** 3.6 m **D** 7.3 m

24. O/N 18/P32/Q24

An economy's manufacturing share of real GDP fell from 30% in 1970 to 12% in 2016.

What type of unemployment would result from this?

A cyclical **B** frictional **C** structural **D** voluntary

25. O/N 18/P32/Q25

In an open economy, when autonomous investment increases by 100, equilibrium national income increases by 300.

Which conclusion can be drawn?

A The accelerator is 3.

B The marginal propensity to consume is $\frac{2}{3}$.

C The marginal propensity to import is $\frac{2}{3}$.

D The marginal propensity to save plus marginal tax rate is $\frac{1}{3}$.

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26. O/N 18/P32/Q26

The diagram outlines the monetary transmission mechanism following an expansionary central bank intervention (quantitative easing). Key actions have been omitted from the process.

central bank .....1..... government assets

↓

short-term interest rates .....2.....

↓

investment demand .....3.....

↓

real GDP rises

Which words complete gaps 1, 2 and 3?

	1	2	3
A	buys	fall	rises
B	buys	rise	falls
C	sells	fall	rises
D	sells	rise	falls

27. O/N 18/P32/Q27

In Keynesian monetary theory, when will an increase in the supply of money not cause a fall in interest rates?

A if bond prices are expected to rise

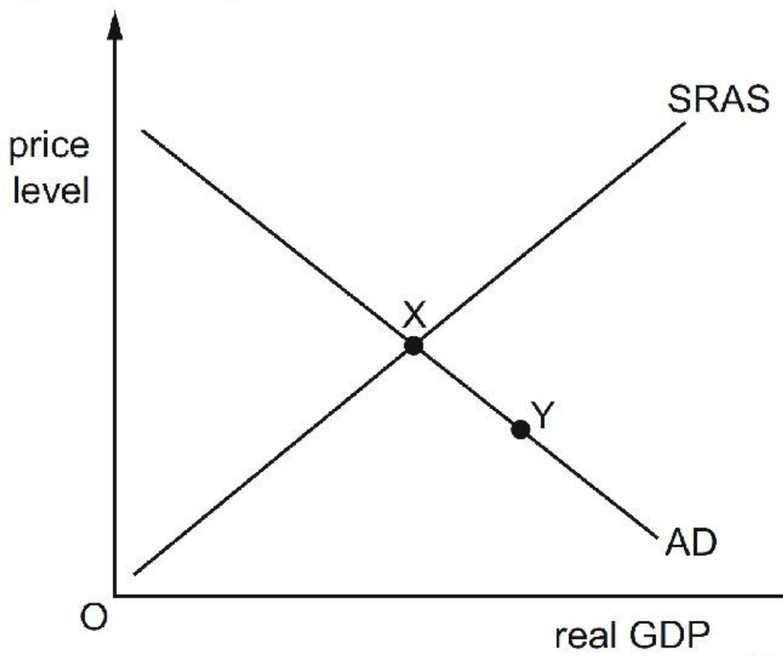
B if investment demand is interest-inelastic

C if the liquidity preference schedule is perfectly elastic

D if the velocity of circulation of money increases

28. O/N 18/P32/Q28

The diagram shows an economy in equilibrium at point X.



What would be most likely to cause the economy to move from point X to point Y?

A an increase in government spending on transfer payments

B an increase in income tax

C an increase in the average wage rate

D an increase in the productivity of labour

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29. O/N 18/P32/Q29

The table identifies pairs of possible government aims.
In which case is achievement of aim 1 likely to be consistent with the achievement of aim 2?

	aim 1	aim 2
A	higher foreign exchange rate	lower rate of unemployment
B	low rate of inflation	balance of payments surplus
C	more even distribution of income	higher rate of saving
D	rapid economic growth	sustainable economic development

30. O/N 18/P32/Q30

What is most likely to result from the discovery of oil reserves in a developing economy?

A a more equal distribution of income and wealth
B an increase in the competitiveness of commercial agriculture
C an increase in the exchange rate
D a reduction in the volume of imports of manufactured goods

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May/June 2019 Paper 32

1. M/J 19/P32/Q1

Which statement is correct?

A In a command economy firms compete and profit maximise allocating resources efficiently.

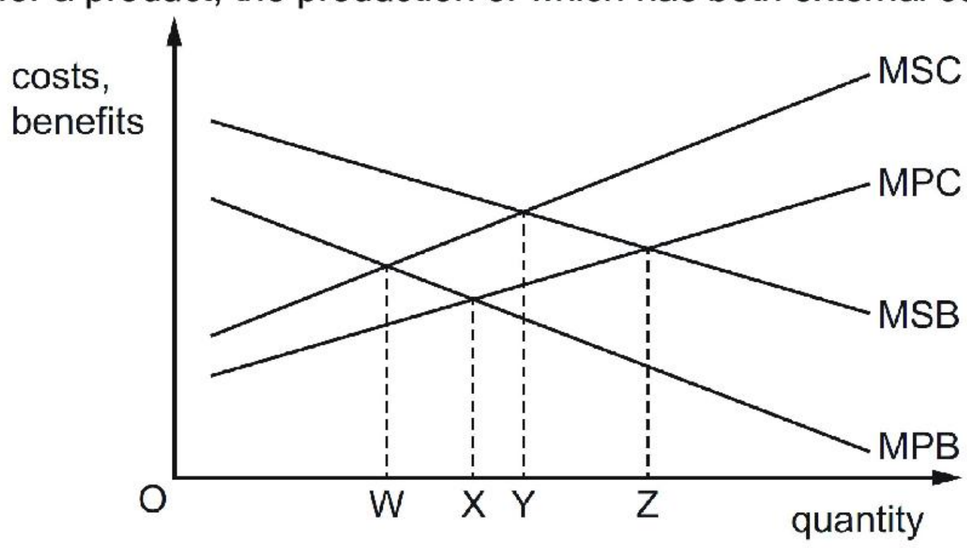
B In a command economy resources are privately owned.

C In a market economy prices are used to signal the value of individual resources.

D In a market economy resources are allocated by central planners.

2. M/J 19/P32/Q2

The diagram shows the market for a product, the production of which has both external costs and external benefits.



What is the difference between the level of output that would be produced by the market and the socially optimum level?

A WX **B** WY **C** XY **D** XZ

3. M/J 19/P32/Q3

The government is considering building flood defences along a river. It has calculated the costs and benefits as follows.

	costs $m	benefits $m
private	450	260
external	60	190

According to cost-benefit analysis, which decision and reasoning about flood defences is correct?

	decision	reasoning
A	build	external benefits are greater than external costs
B	build	social benefits are greater than private benefits
C	do not build	private costs are greater than the external benefits
D	do not build	social costs are greater than the social benefits

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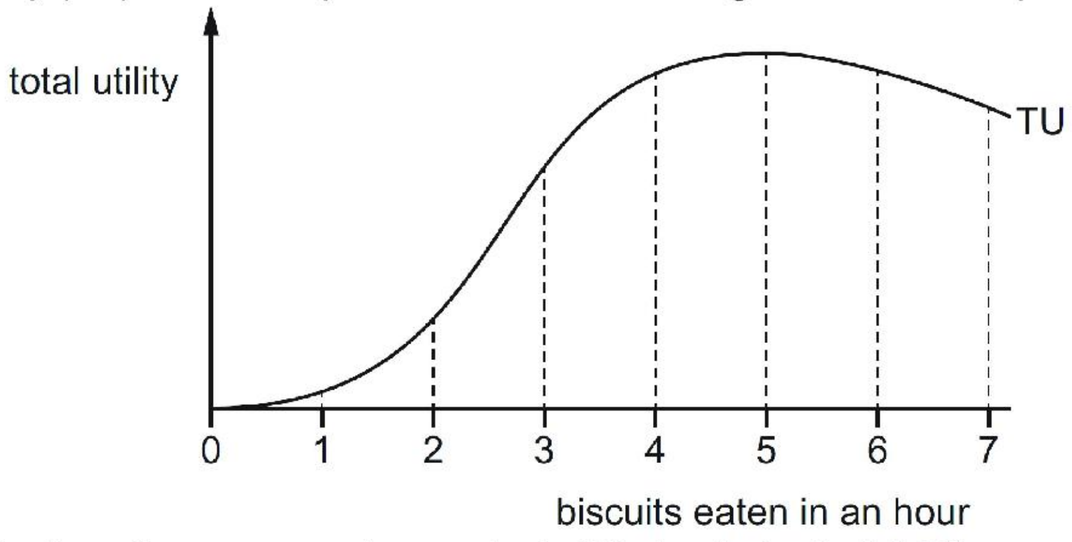
4. M/J 19/P32/Q4

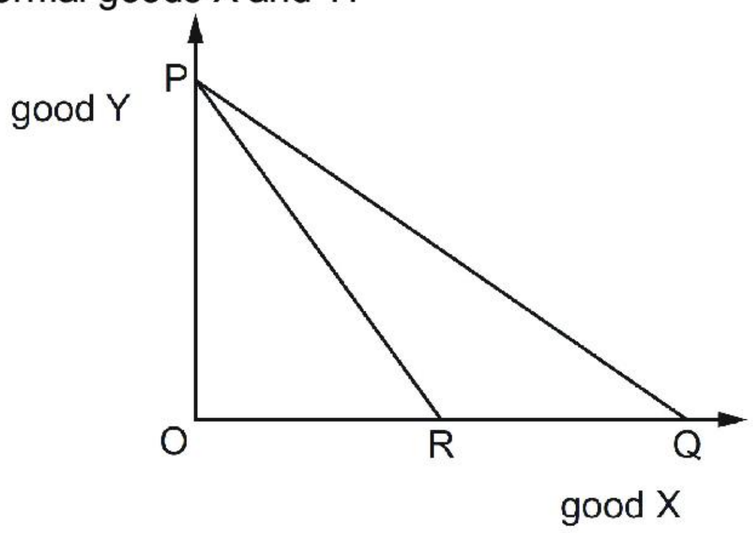
The graph shows the total utility (TU) obtained by a consumer from eating biscuits over a period of one hour.



After eating how many biscuits does the consumer's marginal utility begin to diminish?

5. M/J 19/P32/Q5

The diagram shows budget lines for normal goods X and Y.



What could cause a budget line to shift from PQ to PR?

	price of X	price of Y	level of consumer incomes
A	fall	rise	fall
B	no change	rise	no change
C	rise	no change	no change
D	rise	no change	rise

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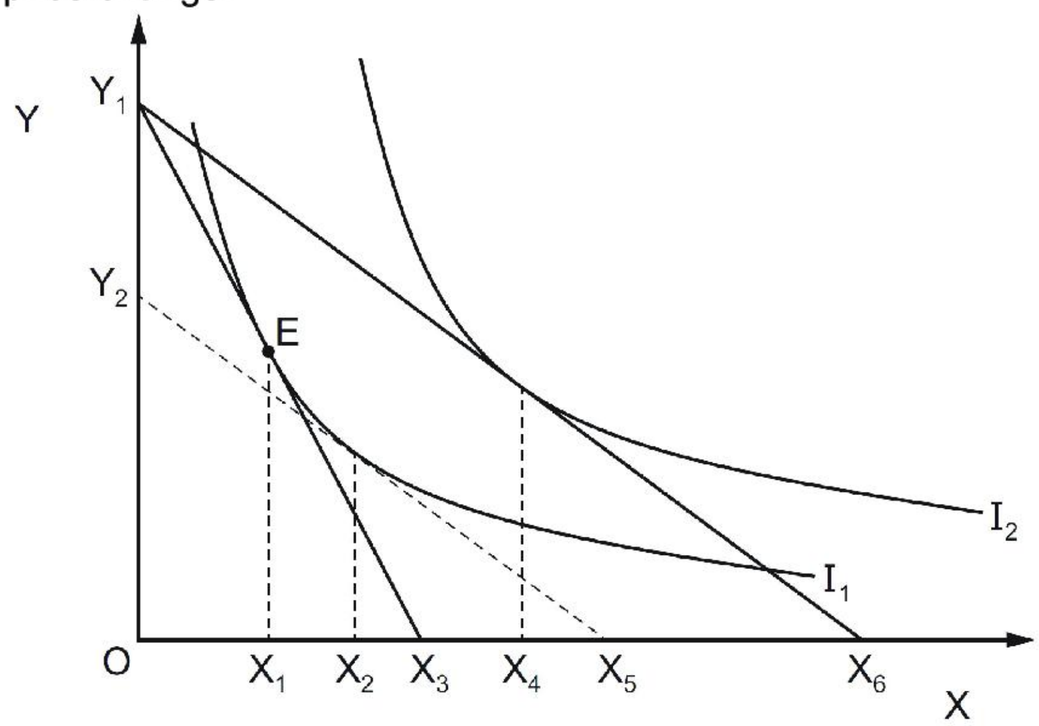
6. M/J 19/P32/Q6

A consumer spends all of their income on two goods, Y and X, and is at position E. The price of X falls and the price of Y remains constant.

The graph shows indifference curves and budget lines which are used to determine the price, income and substitution effects that are related to this price change.



Which distance gives the income effect of this price change?

A X_1X_2 **B** X_1X_4 **C** X_2X_4 **D** X_5X_6

7. M/J 19/P32/Q7

What defines average variable cost?

A total cost divided by the quantity of the variable factor employed

B total variable cost divided by the quantity of the variable factor employed

C total variable cost divided by the output produced

D the addition to total variable cost by producing one more unit of output

8. M/J 19/P32/Q8

What **cannot** be changed in the short run?

A the level of stock held by firms

B the level of technology available

C the market price of goods

D the output of individual firms in an industry

9. M/J 19/P32/Q9

The market structure of an industry changed from being an oligopoly to monopolistic competition.
What is most likely to have increased?

A an individual firm's ability to influence the market price

B an individual firm's degree of interdependence in the market

C the concentration ratio in the market

D the number of firms in the market

10. M/J 19/P32/Q10

A firm has total production cost of $200 000. Its average fixed cost is $120 and its average variable cost is $80.
What are the firm's total fixed costs?

A $12 000 **B** $40 000 **C** $80 000 **D** $120 000

11. M/J 19/P32/Q11

What is a characteristic of monopolistic competition?

A abnormal profits in the long run

B advertising supporting product differentiation

C all firms charge the same price

D barriers to entry are high

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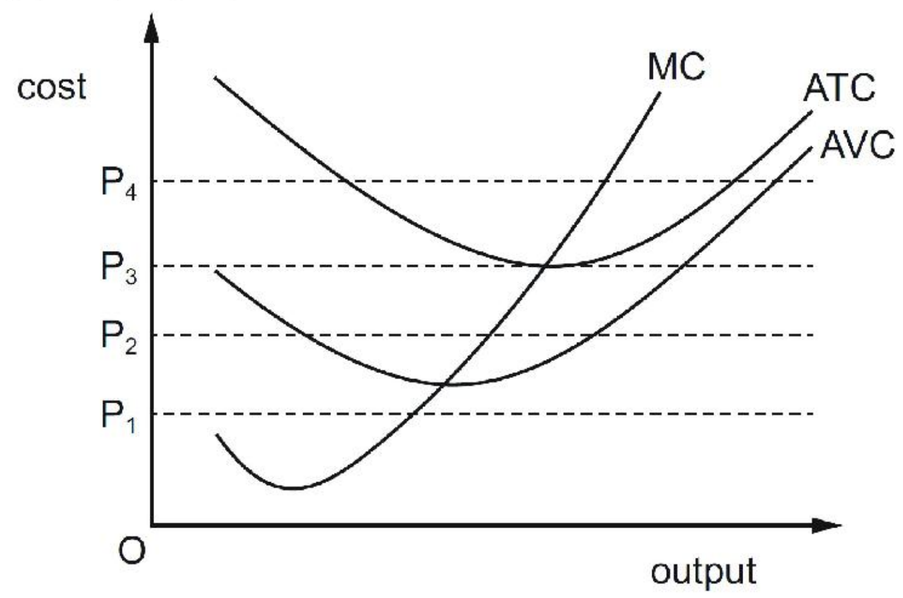
12. M/J 19/P32/Q12

The diagram shows the marginal cost (MC), average variable cost (AVC) and average total cost (ATC) curves of a profit maximising firm in a perfectly competitive market.



Which market price would mean the firm would operate in the short run but not in the long run?

A P_1 **B** P_2 **C** P_3 **D** P_4

13. M/J 19/P32/Q13

The table shows the average incomes of the richest 20% of households and the poorest 20% of households in the UK (2015–2016), and the effects of government taxation and benefits on average income.

	average income (£) of richest 20%	average income (£) of poorest 20%
before taxes and benefits	85 000	7 000
after direct taxes and cash benefits	68 000	13 000
after all taxes (direct and indirect) and all benefits	63 000	17 000

What can be concluded from the information in the table?

A The effects of direct taxation have affected the rich less than the poor.

B The government's policy achieved income equality across households.

C The government redistributed all income taken from the rich to the poor.

D The government's policy reduced the income inequality between the poor and the rich.

14. M/J 19/P32/Q14

Assuming there are no externalities, where would a nationalised firm set output to maximise social welfare?

A where average revenue equals average cost **C** where marginal revenue equals marginal cost

B where average revenue equals marginal cost **D** where marginal revenue is zero

15. M/J 19/P32/Q15

What is the specific advantage of pollution permits, when compared with an alternative policy of taxes levied on the quantity of pollutants emitted by firms?

A firms have a financial incentive to reduce pollution

B no monitoring of firm's emissions is required

C pollution levels can be reduced to zero

D the reduction in the level of pollution is more predictable

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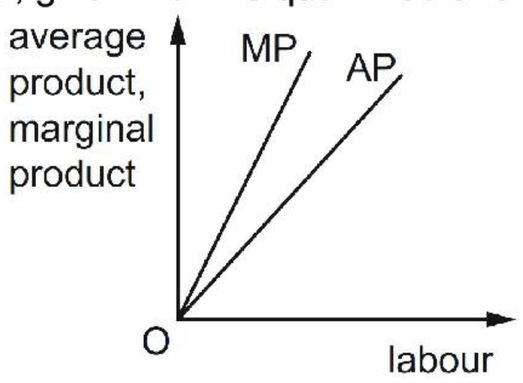
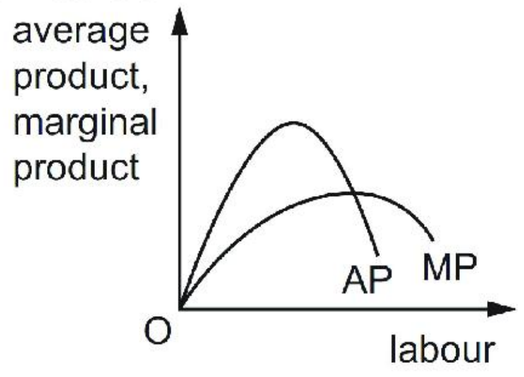
16. M/J 19/P32/Q16

Which diagram correctly shows the relationship between the average product (AP) and the marginal product (MP) of labour, given that the quantities of other factor inputs remain constant?

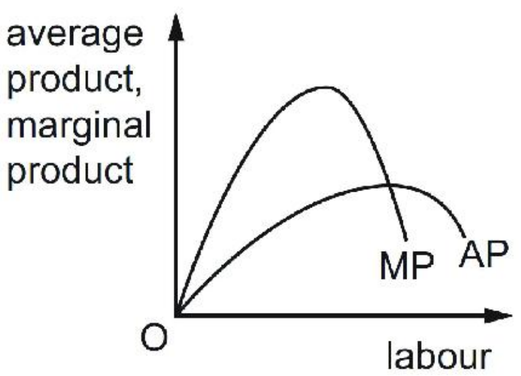
A



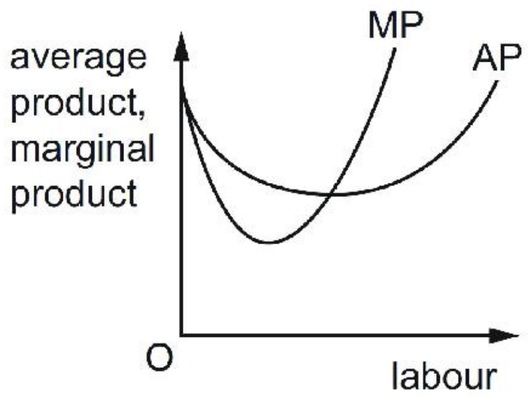
C



B

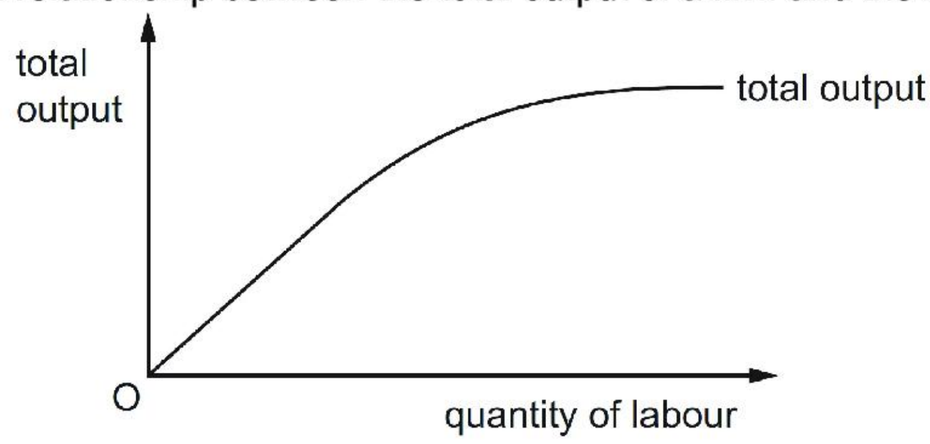


D



17. M/J 19/P32/Q17

The diagram shows the short-run relationship between the total output of a firm and the quantity of labour.



What can be concluded about the firm?

A It is experiencing increasing returns to scale.

B It is experiencing constant returns to scale.

C The marginal physical product of capital is constant.

D The marginal physical product of labour eventually diminishes.

18. M/J 19/P32/Q18

Company X reduces its number of workers from 250 to 200 and as a result its output decreases from 5000 to 4800 units per day.

Company Y increases its number of workers from 800 to 1000 and as a result its output increases from 2000 to 2200 units per day.

What happens to labour productivity of the workers in the two companies?

	company X	company Y
A	falls	rises
B	rises	falls
C	rises	rises
D	falls	falls

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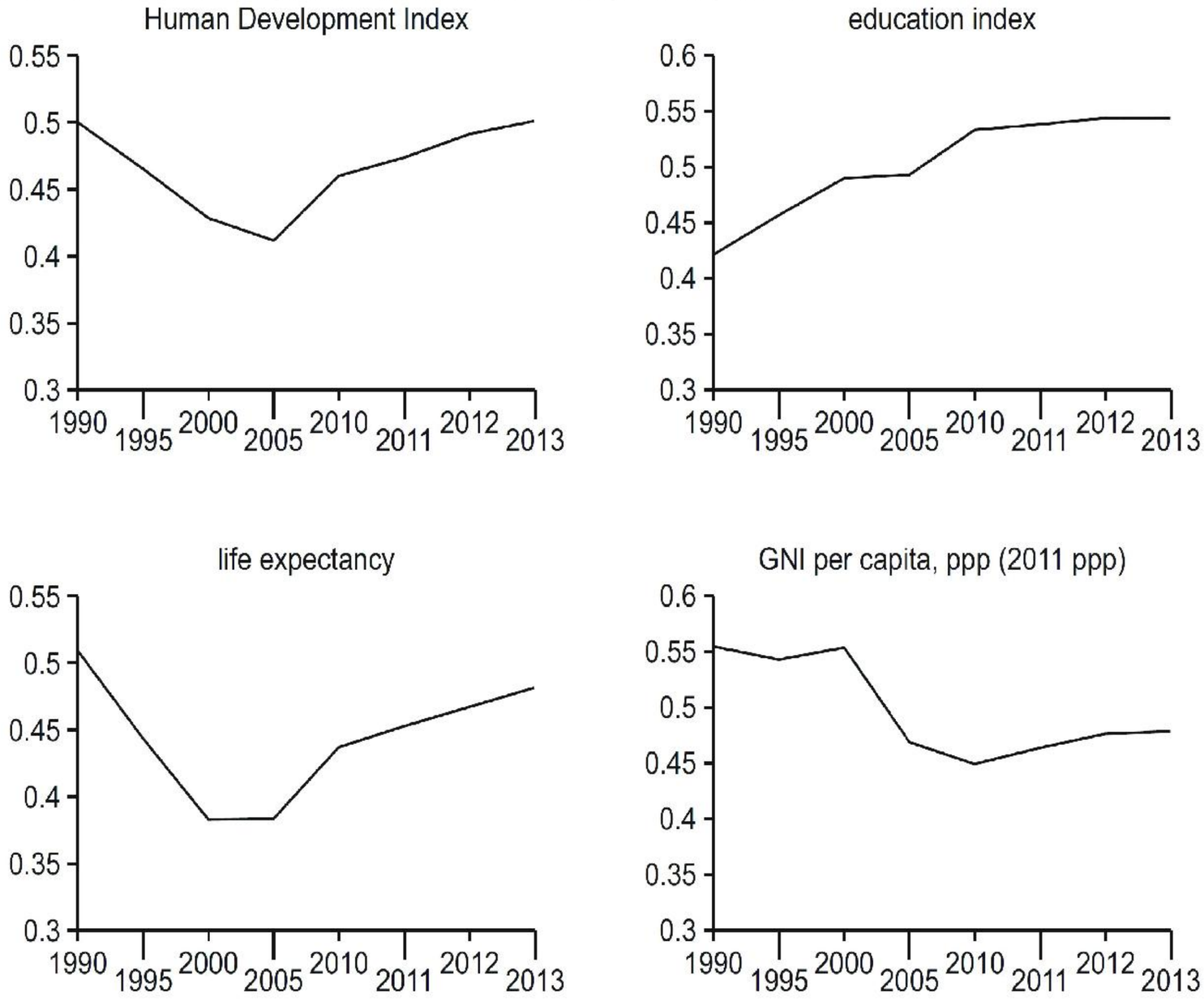
19. M/J 19/P32/Q19

What is not included in the measurement of national income?

A age-related pensions
B dividends obtained from foreign investments
C housing authorities' income from rent
D profits distributed to shareholders

20. M/J 19/P32/Q20

The graphs show the Human Development Index and its component parts for Zimbabwe.



Between 2005–2010, which components of HDI have comparable changes to its overall change?

A education and GNI per capita
B education and life expectancy
C education, GNI per capita and life expectancy
D GNI per capita and life expectancy

21. M/J 19/P32/Q21

What makes it possible for the increase in real national output to exceed the increase in labour productivity?

A an increase in employment
B an increase in the inflation rate
C an increase in the money supply
D an increase in total earnings

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22. M/J 19/P32/Q22

The table shows the annual percentage (%) change in China's GDP and the contribution of some of its component parts between 2006 and 2012.

	2006	2007	2008	2009	2010	2011	2012
GDP	12.7	14.2	9.6	9.2	10.4	9.3	7.7
consumption	5.1	5.6	4.2	4.6	4.5	5.2	4.2
investment	5.5	6.0	4.5	8.1	5.5	4.5	3.9
net exports	2.1	2.6	0.9	–3.5	0.4	–0.4	–0.4

What can be concluded about China's economy between 2006 and 2012?

A China's current account was in surplus more years than it was in deficit.

B China's economic rate of growth fell in more years than it rose.

C China's growth was greater overall in consumer goods than in capital goods.

D China's standard of living rose at a decreasing rate.

23. M/J 19/P32/Q23

What is a cause of seasonal unemployment?

A a general decrease in the demand for goods and services

B a lack of necessary skills in the workforce

C a temporary change in the pattern of consumers' expenditure

D an unwillingness of workers to move to other parts of the country where there is work

24. M/J 19/P32/Q24

Which row correctly identifies leakages from a country's circular flow of income?

	private sector (S > I)	public sector (T > G)	trade sector (X > M)
A	no	no	yes
B	no	yes	yes
C	yes	no	no
D	yes	yes	no

25. M/J 19/P32/Q25

In a closed economy with no government expenditure and no taxation, the initial income is $5000 million. All savings are carried out by consumers, who save 20% of any additional income received above $5000 million. Firms plan to invest $1000 million.

What is the value of the multiplier?

A 0.8 **B** 4 **C** 5 **D** 8

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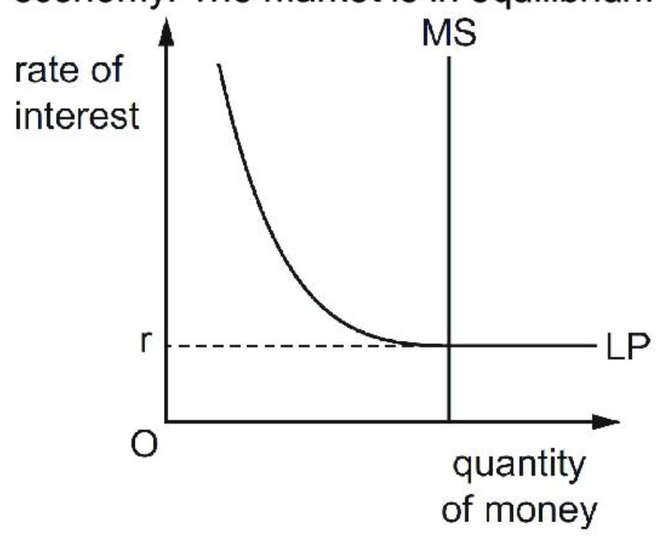
26. M/J 19/P32/Q26

The diagram shows a liquidity preference curve (LP) representing the demand to hold money in relation to the rate of interest and the money supply (MS) in an economy. The market is in equilibrium at interest rate r.



If the government increases the money supply, what will be the effect on the interest rate?

A falls below zero **B** falls to zero **C** increases **D** no effect

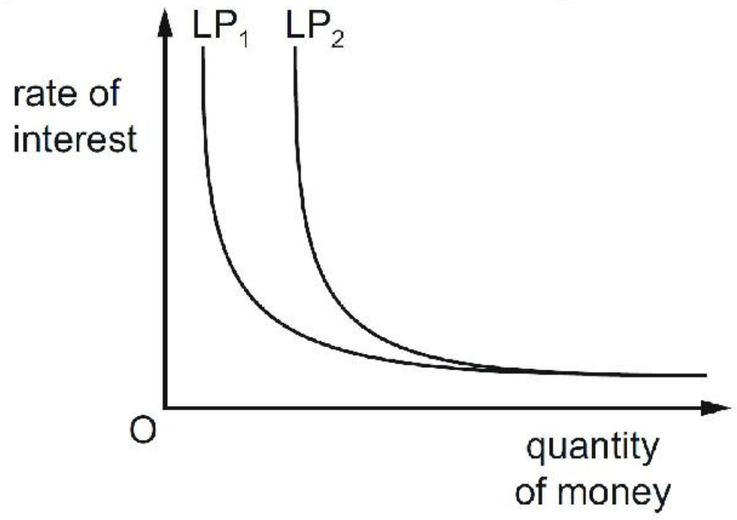
27. M/J 19/P32/Q27

An increase in which of the following will cause a decrease in investment spending?

A business confidence
B company profits
C interest rates
D national income

28. M/J 19/P32/Q28

The graph shows a shift in the liquidity preference curves for an economy from LP_1 to LP_2.



What might have caused this shift?

	an increase in real national income	increased pessimism about the future of the economy
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

29. M/J 19/P32/Q29

What is most likely to increase in the short run following a rise in an economy's rate of inflation caused by a demand-side shock?

A the current account deficit on the balance of payments
B the price of government bonds
C the purchasing power of the currency
D the rate of unemployment

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30. M/J 19/P32/Q30

Which combination of policies is **most** likely to increase output?

	fiscal policy	monetary policy
A	decrease budget deficit	decrease interest rates
B	decrease budget deficit	increase interest rates
C	increase budget deficit	decrease interest rates
D	increase budget deficit	increase interest rates

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Answer Key

1	**C**	9	**B**	17	**D**	25	**B**
2	**B**	10	**D**	18	**B**	26	**A**
3	**B**	11	**A**	19	**D**	27	**C**
4	**D**	12	**D**	20	**D**	28	**D**
5	**D**	13	**A**	21	**B**	29	**B**
6	**D**	14	**C**	22	**A**	30	**C**
7	**A**	15	**A**	23	**C**		
8	**C**	16	**A**	24	**C**		

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Answer Key

1	**C**	9	**D**	17	**D**	25	**C**
2	**C**	10	**D**	18	**B**	26	**D**
3	**D**	11	**B**	19	**A**	27	**C**
4	**A**	12	**B**	20	**B**	28	**A**
5	**C**	13	**D**	21	**A**	29	**A**
6	**C**	14	**B**	22	**B**	30	**C**
7	**C**	15	**D**	23	**C**		
8	**B**	16	**B**	24	**D**		

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